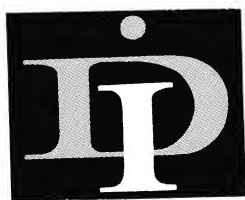
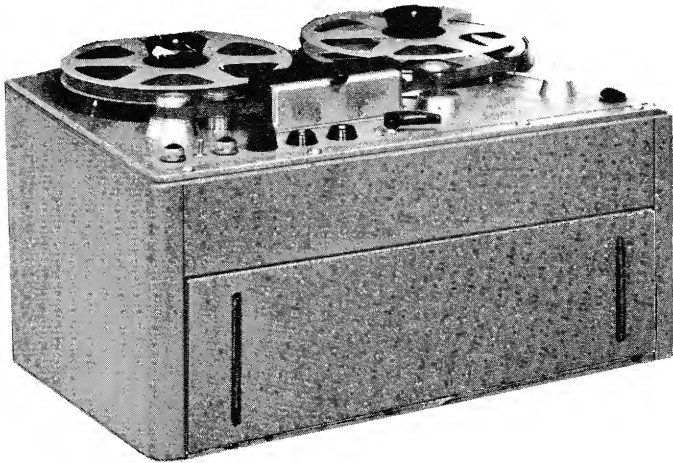


FOR RENT



DATA CRAFT, INC.

15225 SOUTH MAIN ST. • GARDENA, CALIF. • 321-2320 323-9120



Ampex 351 Tape Transport  
Sanborn 3900 Electronics  
Stock Number 1002-1  
Price: \$150.00/Wk.  
\$460.00/Mo.

This 4-channel, 2 speed, Sanborn/Ampex Magnetic Data Recording System is completely transistorized and conforms to accepted instrumentation (IRIG) standards. It uses interchangeable FM and/or direct record/reproduce electronics which for 4 complete channels occupies only 7 inches of rack panel space. The solid state record/reproduce amplifiers are mounted on readily accessible printed circuit plug-in modules permitting a choice of bandwidths (FM or Direct Recording). It is not necessary to change plug-in cards when going from record to reproduce modes, since both record and reproduce electronics are on the same cards.

Tape speeds are 7-1/2 and 15 ips.

#### SPECIFICATIONS

##### FM RECORD-REPRODUCE SYSTEM

For D-C to 2,500 cycle bandwidth

- General: Bandwidths, center FM carrier frequencies and deviations conform to IRIG standards.  
Input Impedance: 10,000 ohms unbalanced to ground.  
Input Level: 1 volt rms to  $\pm 3$  volts peak-to-peak (adjustable).  
Output Impedance: 100 ohms maximum, unbalanced to ground.  
Output Level: 1 volt rms to 10 volt peak-to-peak (adjustable) at an output current of up to  $\pm 3$  milliamperes.  
Output center DC level adjustable  $\pm 2$  volts for positioning optical or direct-writing galvanometers.  
Linearity: DC  $\pm 0.5\%$ ; AC  $\pm 1\%$  of full-scale maximum deviation from a straight line through the center-scale point and  $\pm 40\%$  modulation point.  
Drift:  $\pm 0.5\%$  of full-scale for a 10 volt power line change, or  $10^\circ\text{C}$  ambient temperature change.  
Flutter Compensation: Channel 3 may be connected as a compensation channel for all other channels by means of a switch, providing up to 10 db improvement in low-frequency noise.  
Automatic Squelch: All output circuits are disconnected by a relay when tape is stopped or in FAST FORWARD or REWIND.

FM Alignment Meter: By means of a built-in meter and channel selector switch, center carrier frequency and modulation sensitivity of all FM channels may be aligned without the use of electronic counters.

##### DIRECT RECORD-REPRODUCE SYSTEM

For 50 to 25,000 cycle bandwidth

- Input Impedance: 20,000 ohms, unbalanced to ground.  
Input Level: 0.5 volt rms to 10 volts rms adjustable with a potentiometer.  
Harmonic Distortion: 1.4% maximum at normal recording level with a 500 cycle signal.  
Output Signal Level: Adjustable from 1.0 volt rms to 6.0 volts peak-to-peak at  $\pm 3$  milliamperes  
Output DC Level: Output is direct-coupled with center-scale output level adjustable for positioning of optical or direct-writing galvanometers.  
Output Impedance: 100 ohms maximum.



## INSTRUMENTATION TAPE RECORDERS

MAGNETIC TAPE  
RECORDER/REPRODUCER

Consolidated's Type PR-3300 Recorder/Reproducer combines low cost and portability with excellent performance. The complete 14-channel record and reproduce system can be utilized as a single portable system 29 7/8 inches high weighing no more than 213 pounds. Tape widths of 1/2 inch or 1 inch are accommodated by the transport.

Solid state electronics, which are used throughout, insure reliability. Direct FM, or PDM recording/reproducing techniques can be used exclusively, or combined in any manner. Overall frequency response of the PR-3300 is 100 cps to 100 kc (Direct) or 0-10 kc (FM).

Features: IRIG Compatibility  
All Solid State Electronics  
Uniform Tape Tension Drive  
All-Metal-Surface Magnetic Heads

Consolidated Electro Dynamics

Model PR-3300

Stock Number 1003

Price: \$ 585.00/Wk.

\$1460.00/Mo.

## SPECIFICATIONS

## TRANSPORT

Tape Speeds: Six standard speeds in 3 pairs (60, 30 ips; 15 7-1/2 ips; and 3-3/4, 1-7/8 inches per second) are set up by means of a simple belt and switch change. HIGH-LOW pushbuttons on the PR-3300's front panel permit electrical selection of either speed in the pairs indicated.

Tape Dimensions: 1/2 or 1-inch wide. All transports accept either 1- or 1.5 mil mylar bias tape.

Reel Size: 10-1/2 inch dia.

## DIRECT RECORD AND REPRODUCE SYSTEM

Frequency Response and Signal-To-Noise Ratio: 100 cps to 100 kc -35 db all speeds.

Input Level: 1 volt rms nominal (0 db) to produce normal recording level.

Input Sensitivity: 0.25 to 10 volts rms; adjustable with input potentiometer for normal record level.

Input Impedance: 20 k ohms, unbalanced to ground.

Output Level: 1 volt rms nominal (0 db) across a 600 ohm load impedance (at normal level).

Bias Frequency: 375 kc.

## FM RECORD AND REPRODUCE SYSTEM

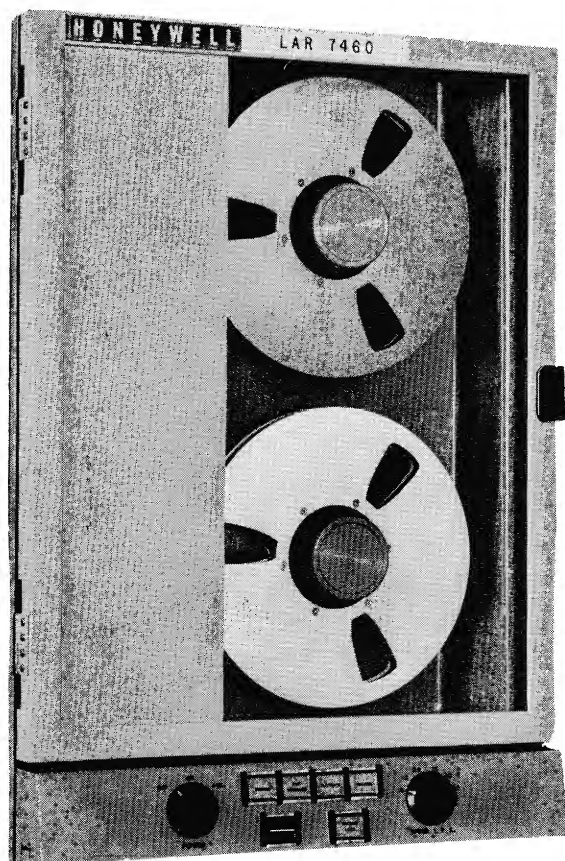
Tape Speed	Center Frequency	Information Frequency	Full-Scale SNR (RMS)	Harmonic Distortion
60 ips	54.0 kc	0-10 kc $\pm$ 0.5 db	46 db	1.5%
30	27.00	0-5.0 $\pm$ 0.5	46	1.5
15	13.5	0-2.5 $\pm$ 0.5	42	1.5
7-1/2	6.75	0-1.25 $\pm$ 0.5	42	1.5
3-3/4	3.375	0-625 cps $\pm$ 0.5	38	1.5
1-7/8	1.6875	0-312 $\pm$ 0.5	38	1.5

Input Level: 1 volt rms nominal (0 db) to produce full scale modulation ( $\pm$  40%) of the carrier.

Input Impedance: 10 k ohms, unbalanced to ground  
A-C and D-C Linearity:  $\pm$  1% of full scale.

Input Sensitivity: 0.5 to 10 volts rms; adjustable with input potentiometer for full scale modulation ( $\pm$  40%) of the carrier.

Output Level: 1 volt rms nominal (0 db) across a 10 k ohm load impedance, for full scale modulation.



Honeywell 3160 Series  
Tape Transport  
Sanborn 3900 Electronics  
Stock No. 1003-1  
Price: \$585.00/Wk. \$1460.00/Mo.

**FM Alignment Meter:** By means of a built-in meter and channel selector switch, center carrier frequency and modulation sensitivity of all FM channels may be aligned without the use of electronic counters.

**DIRECT RECORD - REPRODUCE SYSTEM**  
For 50 to 100,000 cycle bandwidth

**Input Impedance:** 20,000 ohms, unbalanced to ground.  
**Input Level:** 0.5 volt rms to 10 volts rms adjustable with a potentiometer.  
**Harmonic Distortion:** 1.4% maximum at normal recording level with a 500 cycle signal.

This 14-channel, 6 speed, Honeywell/Ampex Magnetic Data Recording System is completely transistorized and conforms to accepted instrumentation (IRIG) standards. It uses interchangeable FM and/or direct record/reproduce electronics which for 14 complete channels occupies only 14 inches of rack panel space. The solid state record/reproduce amplifiers are mounted on readily accessible printed circuit plug-in modules permitting a choice of bandwidths (FM or Direct Recording). It is not necessary to change plug-in cards when going from record to reproduce modes, since both record and reproduce electronics are on the same cards.

Tape speed: 60, 30, 15, 7-1/2, 3-3/4 and 1-7/8 ips.

**SPECIFICATIONS**

**FM RECORD-REPRODUCE SYSTEM**  
For D-C to 10,000 cycle bandwidth

**General:** Bandwidths, center FM carrier frequencies and deviations conform to IRIG standards.  
**Input Impedance:** 10,000 ohms unbalanced to ground.  
**Input Level:** 1 volt rms to  $\pm 3$  volts peak-to-peak (adjustable).  
**Output Impedance:** 100 ohms maximum, unbalanced to ground.  
**Output Level:** 1 volt rms to 10 volt peak-to-peak (adjustable) at an output current of up to  $\pm 3$  milliamperes.  
Output center DC level adjustable  $\pm 2$  volts for positioning optical or direct-wiring galvanometers.  
**Linearity:** DC  $\pm 0.5\%$ ; AC  $\pm 1\%$  of full-scale maximum deviation from a straight line through the center-scale point and  $\pm 40\%$  modulation point.  
**Drift:**  $\pm 0.5\%$  of full-scale for a 10 volt power line change, or  $10^\circ\text{C}$  ambient temperature change.  
**Flutter Compensation:** Channel 3 may be connected as a compensation channel for all other channels by means of a switch, providing up to 10 db improvement in low-frequency noise.  
**Automatic Squelch:** All output circuits are disconnected by a relay when tape is stopped or in FAST FORWARD or REWIND.

**Output signal Level:** Adjustable from 1.0 volt rms to 6.0 volts peak-to-peak at  $\pm 3$  milliamperes.  
**Output DC Level:** Output is direct-coupled with center-scale output level adjustable for positioning of optical or direct-writing galvanometers.  
**Output Impedance:** 100 ohms maximum.





## INSTRUMENTATION TAPE RECORDERS

SECTION 1000



Sanborn Model 3914A  
Stock No. 1003-3  
Price: \$585.00/Wk. \$1460.00/Mo.

**FM Alignment Meter:** By means of a built-in meter and channel selector switch, center carrier frequency and modulation sensitivity of all FM channels may be aligned without the use of electronic counters.

### DIRECT RECORD-REPRODUCE SYSTEM For 50 to 100,000 cycle bandwidth

**Input Impedance:** 20,000 ohms, unbalanced to ground.  
**Input Level:** 0.5 volt rms to 10 volts rms adjustable with a potentiometer.  
**Harmonic Distortion:** 1.4% maximum at normal recording level with a 500 cycle signal.

This 14-channel, 6 speed, Sanborn/Hewlett-Packard Data Recording System is completely transistorized and conforms to accepted instrumentation (RIG) standards. It uses interchangeable FM and/or direct record/reproduce electronics which for 14 complete channels occupies only 14 inches of rack panel space. The solid state record/reproduce amplifiers are mounted on readily accessible printed circuit plug-in modules permitting a choice of bandwidths (FM or Direct Recording). It is not necessary to change plug-in cards when going from record to reproduce modes, since both record and reproduce electronics are on the same cards.

**Tape speeds:** 60, 30, 15, 7-1/2, 3-3/4 & 1-7/8 ips.  
**Tape length:** 2400 ft., 1.5 mil tape,  
3600 ft., 1.0 mil tape,  
4800 ft., 0.65 mil tape.

### SPECIFICATIONS

#### FM RECORD-REPRODUCE SYSTEM For D-C to 10,000 cycle bandwidth

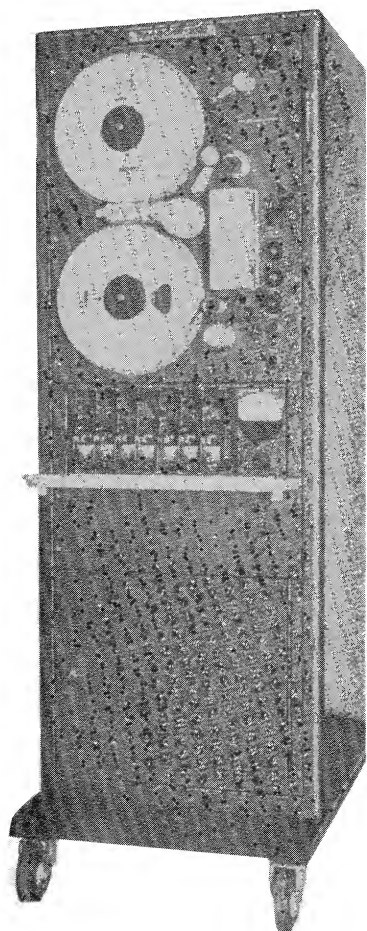
**General:** Bandwidths, center FM carrier frequencies and deviations conform to IRIG standards.  
**Input Impedance:** 10,000 ohms unbalanced to ground.  
**Input Level:** 1 volt rms to  $\pm 3$  volts peak-to-peak (adjustable).  
**Output Impedance:** 100 ohms maximum, unbalanced to ground.  
**Output Level:** 1 volt rms to 10 volt peak-to-peak (adjustable) at an output current of up to  $\pm 3$  milliamperes.  
Output center DC level adjustable  $\pm 2$  volts for positioning optical or direct-wiring galvanometers.  
**Linearity:** DC  $\pm 0.5\%$ ; AC  $\pm 1\%$  of full-scale maximum deviation from a straight line through the center-scale point and  $\pm 40\%$  modulation point.  
**Drift:**  $\pm 0.5\%$  of full-scale for a 10 volt power line change, or  $10^\circ\text{C}$  ambient temperature change.  
**Flutter Compensation:** Channel 3 may be connected as a compensation channel for all other channels by means of a switch, providing up to 10 db improvement in, low-frequency noise.  
**Automatic Squelch:** All output circuits are disconnected by a relay when tape is stopped or in FAST FORWARD or REWIND.

**Output Signal Level:** Adjustable from 1.0 volt rms to 6.0 volts peak-to-peak at  $\pm 3$  milliamperes.  
**Output DC Level:** Output is direct-coupled with center-scale output level adjustable for positioning of optical or direct-writing galvanometers.  
**Output Impedance:** 100 ohms maximum.



## INSTRUMENTATION TAPE RECORDERS

SECTION 1000



Sanborn/Ampex  
Model 2000  
Stock Number 1004  
Price: \$385.00/Wk. \$995.00/Mo.

### SPECIFICATIONS

#### FM RECORD-REPRODUCE SYSTEM

For D-C to 10,000 cycle bandwidth

General: Bandwidths, center FM carrier frequencies and deviations conform to IRIG standards.

Input Impedance: 10,000 ohms unbalanced to ground.

Input Level: 1 volt rms to  $\pm 3$  volts peak-to-peak (adjustable).

Output Impedance: 100 ohms maximum, unbalanced to ground.

Output Level: 1 volt rms to 10 volt peak-to-peak (adjustable) at an output current of up to  $\pm 3$  milliamperes. Output center DC level adjustable  $\pm 2$  volts for positioning optical or direct-wiring galvanometers.

Linearity: DC  $\pm 0.5\%$ ; AC  $\pm 1\%$  of full-scale maximum deviation from a straight line through the center-scale point and  $\pm 40\%$  modulation point.

Drift:  $\pm 0.5\%$  of full-scale for a 10 volt power line change, or  $10^\circ\text{C}$  ambient temperature change.

Flutter Compensation: Channel 3 may be connected as a compensation channel for all other channels by means of a switch, providing up to 10 db improvement in low-frequency noise.

Automatic Squelch: All output circuits are disconnected by a relay when tape is stopped or in FAST FORWARD or REWIND.

This 7-channel, 4 speed, Sanborn/Ampex Magnetic Data Recording System is completely transistorized and conforms to accepted instrumentation (RIG) standards. It uses interchangeable FM and/or direct record/reproduce electronics which for 7 complete channels occupies only 7 inches of rack panel space. The solid state record/reproduce amplifiers are mounted on readily accessible printed circuit plug-in modules permitting a choice of bandwidths (FM or Direct Recording). It is not necessary to change plug-in cards when going from record to reproduce modes, since both record and reproduce electronics are on the same cards.

Tape speeds are 7-1/2, 15, 30 and 60 ips; 3-3/4, 7-1/2, 15 and 30 ips or 1-7/8, 3-3/4, 7-1/2 and 15 ips. Direct record bandwidth is 200-100,000 cps @ 60 ips and 100-50,000 cps @ 30 ips.

FM Alignment Meter: By means of a built-in meter and channel selector switch, center carrier frequency and modulation sensitivity of all FM channels may be aligned without the use of electronic counters.

#### DIRECT RECORD-REPRODUCE SYSTEM

For 50 to 100,000 cycle bandwidth

Input Impedance: 20,000 ohms, unbalanced to ground.

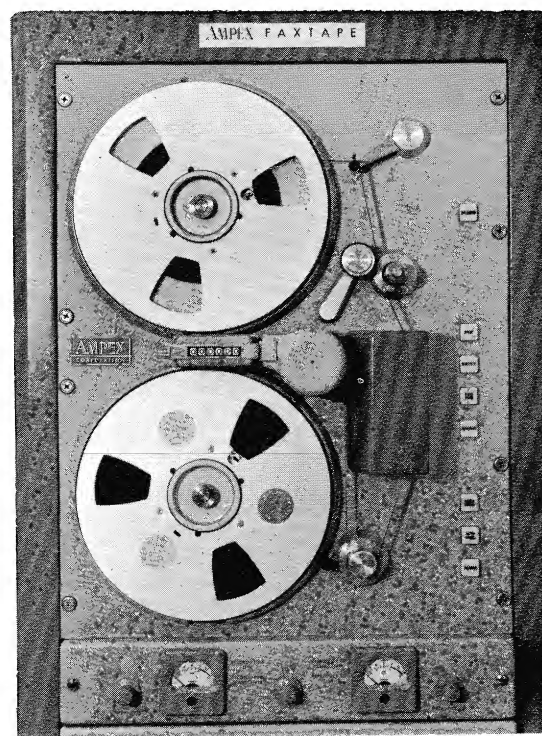
Input Level: 0.5 volt rms to 10 volts rms adjustable with a potentiometer.

Harmonic Distortion: 1.4% maximum at normal recording level with a 500 cycle signal.

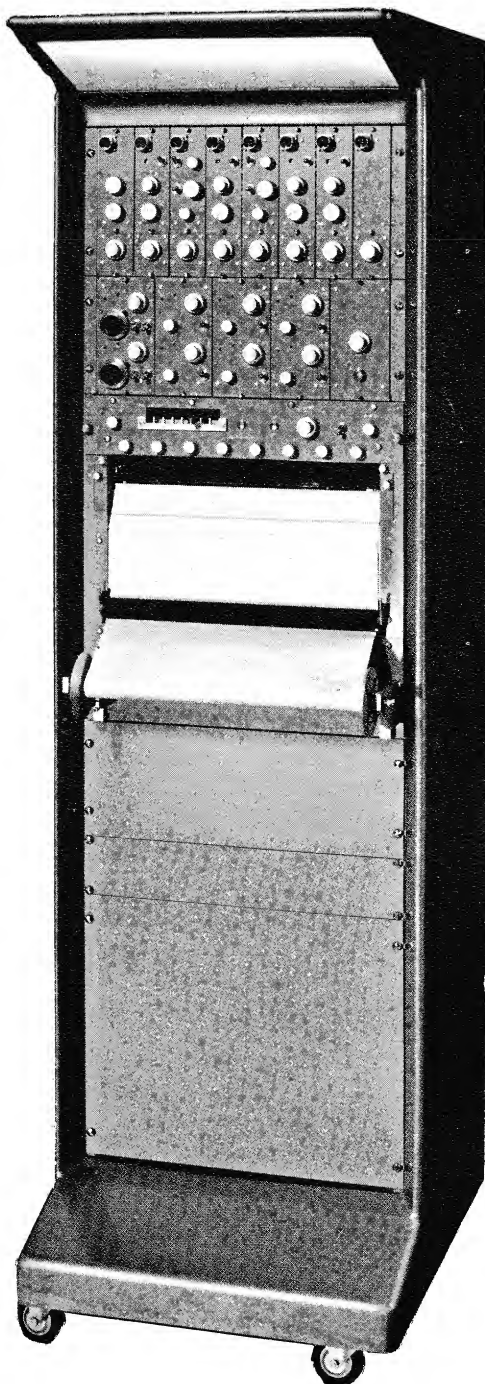
Output Signal Level: Adjustable from 1.0 volt rms to 6.0 volts peak-to-peak at  $\pm 3$  milliamperes.

Output DC Level: Output is direct-coupled with center-scale output level adjustable for positioning of optical or direct-writing galvanometers.

Output Impedance: 100 ohms maximum.

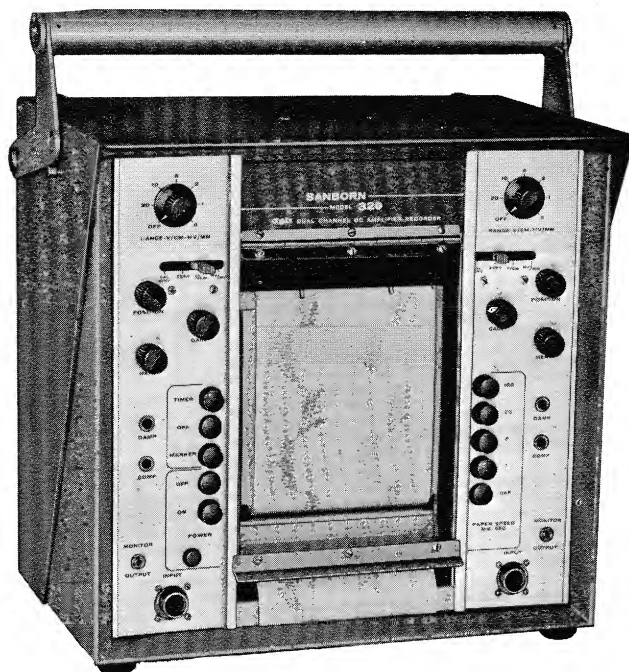


Ampex FR 1100 Tape Transport  
Sanborn 3900 Electronics  
Stock Number 1004-1  
Price: \$385.00/Wk. \$995.00/Mo.



Offner Recorder  
Model R  
Stock Number 1312  
Price: \$189.00/Wk.  
\$523.00/Mo.

The Offner Division of Beckman 6-Channel Recording System – A new, important tool for AC-DC work – with the dependability of transistor circuits, the clarity and simplicity of thermal stylus, and the readability of 50 mm wide curvilinear recordings. Major performance specifications include:  
Frequency response: DC to 150 cps.  
Average frequency recording: 20 to 10,000 cps.  
Chart speeds: 1, 2.5, 5, 10, 25, 50, 100 and 250 mm/sec.



PORTABLE 2-CHANNEL  
RECORDING SYSTEM  
Sanborn Model 320  
Stock Number 1317  
Price: \$ 65.00/Wk.  
\$166.00/Mo.



**DATA CRAFT, INC.**  
15225 SOUTH MAIN ST. • GARDENA, CALIF.

INSTRUMENTATION 1965-6

# FOR RENT



**DATA CRAFT, INC.**

15225 SOUTH MAIN ST. • GARDENA, CALIF. 90247 • 321-2320 323-9120



## RECORDING EQUIPMENT

PRICE CHANGES effective 11 NOVEMBER 1966

<u>Stock No</u>	<u>Manufacturer/Description</u>	<u>Rental</u>	
		<u>Weekly</u>	<u>Monthly</u>

### TAPE RECORDERS

New      Datacraft  
FM  
Spee

New      Datacraft  
Dir  
50-  
Spe

New      CEC Mo  
Dir  
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New      Sanborn  
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Related service

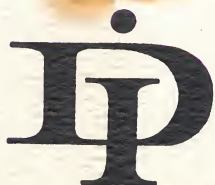
Expert operator

# EQUIPMENT RENTAL

A NEW FORCE IN OUR ECONOMY

by  
ROBERT IRVING

There IS An Intelligent Way to Compare  
The Costs of Ownership to  
The Costs of Renting — And STOP



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# EQUIPMENT RENTAL

A NEW FORCE IN OUR ECONOMY

by  
ROBERT IRVING

There IS An Intelligent Way to Compare  
The Costs of Ownership to  
The Costs of Renting — And STOP  
Confusing "Leasing" With "Renting."

Several excellent articles have appeared during the past few years on the rental of small tools in connection with the do-it-yourself movement. Do-it-yourself rentals, however, are only a small percentage of the total volume of today's equipment rental yards. The greater volume of such yards is done in the day-to-day rental of equipment to large and small retailers, wholesalers, manufacturers and contractors.

There have also been many excellent articles on equipment leasing, which has become an important factor in today's economy.

#### **Distinctions In Transactions**

In law, and in Webster's dictionary, no real distinction is made between renting and leasing. But for those in the equipment rental business, the differences are quite definite. Rental is for a short or indeterminate period of time. It can be less than one day, or for as long as the customer wants it to be. The important thing is this: *the customer can return the rented item anytime he wants to, and pay rent only for the time he has used it.* His cost and his liability begins and ends with the rental period — *which he controls.*

Leasing, on the other hand, involves a contractually agreed upon period of time — generally more than one year — for which the customer usually agrees to terms that repay at least the major portion of the full purchase price of the equipment leased. Some leasing includes maintenance, but most do not. Renting never includes a guaranteed period of time, and renting always includes maintenance.

Many of the articles on "leasing" refer to "leases with maintenance", or lease which can be cancelled at any time, as "rentals". These definitions are incorrect in that they refer to equipment intended for continuous use, such as telephone installations, as "rentals". For equipment rental men, this is leasing, not renting. A true rental transaction means a rental of equipment needed only for short-term, peak period, or seasonal use, *not* equipment intended for continuous use.

Leasing, under certain circumstances, has many excellent arguments in its favor, several of which parallel the arguments in favor of rent-

ing. This article, however, will concern itself with renting, not leasing; renting as it is understood by the thousands of equipment rental yards which today rent out items of equipment for an hour, a day, a week or a month; equipment rental yards in which less than 5% have any equipment at all available for lease.

When should equipment be rented instead of purchased or leased? The primary reasons for renting are:

#### **SHORT TERM USE**

##### **SEASONAL OR PEAK PERIOD USE**

Let's consider each of these.

*Short Term Use.* It is obvious that when a piece of equipment is needed for short term use — for a few hours, a day, a week, or even a month, it is considerably cheaper to rent it than to buy it. There are many short term needs for equipment. A company may be moving, remodeling, or renovating its store or plant. An air compressor may break down or need repair. A particular job may occur only a few times a year, such as the arrival of a carload of freight which can best be unloaded with a rented forklift. Pumps may be needed for emergency flooding, heaters for a cold snap, fans for a heat wave. There are hundreds of possible needs for short term rental.

*Seasonal or Peak Period Use.* Equipment or additional equipment may also be needed for peak or seasonal periods. There are very few businesses which do not have a period of unusually high activity in their operations. The Post Office, for example, rents several thousand additional trucks each Christmas season. An auto assembly plant which owns hundreds of forklift trucks will rent several additional forklifts during introduction of its new models. Packing houses and canneries need additional equipment during harvest periods.

A seasonal or peak period can last for several months. Here, the decision of whether to rent or buy is not always so obvious as for short term rental. The final decision must be based on which is most profitable. This decision can easily turn to ownership for the wrong reasons, notably not properly weighing the relative costs involved.



### New Look At Rentals

Because the equipment rental industry is a new force in our economy, few businessmen are yet trained to make a sufficiently complete analysis of all the costs pertinent to deciding whether to rent or buy. Too often the user of equipment merely compares the dollar cost of renting with the cash price of buying. He fails to realize that the true cost of purchased equipment, during its economic life, will be many times its initial cost, when maintenance and other factors are considered. Practical considerations in deciding whether to rent or buy include:

1. MAINTENANCE
2. BREAKDOWN
3. WAREHOUSING
4. MOBILITY
5. COST CONTROL
6. INVENTORY CONTROL
7. DISPOSAL COSTS
8. OBSOLESCENCE
9. CORRECT EQUIPMENT FOR THE JOB
10. MINIMUM EQUIPMENT REQUIREMENTS
11. PERSONAL PROPERTY TAXES AND LICENSES
12. CONSERVATION OF CAPITAL
13. INCREASES BORROWING CAPACITY

Let's take a brief look at each of these.

1. *Maintenance.* Equipment rented on a day-to-day basis includes full maintenance. The user of such equipment needs no repair shop, no spare parts supply, no mechanics, and no parts supply inventory or maintenance records for it. It is important that all these maintenance costs be added to the cost of owning when deciding whether to rent or buy.

2. *Breakdown.* There are costs related to breakdowns of owned equipment which are not applicable to rented equipment. Virtually all equipment is subject to occasional breakdown in use. When rented equipment breaks down, it is immediately replaced by the equipment rental yard at no cost to the user. Time losses on breakdown of owned equipment as well as the cost of the repairs themselves must be considered.

3. *Warehousing.* Warehousing facilities are seldom needed for rental equipment. This aspect of renting has made it possible for some contractors to operate successful construction businesses with little more overhead than the cost of a telephone answering service by having equipment rental yards serve as their warehouses.

4. *Mobility.* Equipment rental offers the contractor or other user a mobility that could not exist with owned equipment. A contractor, for example, can bid on a job several hundred miles away, secure in the knowledge that he will find the equipment he needs at an equipment rental yard near his job site. Before the rapid growth of equipment rental yards, a major argument in favor of owning equipment was availability and convenience. This has now become one of the strongest arguments against owning, since rental facilities are now almost universal.

5. *Cost Control.* Better cost control is possible with rented equipment. Knowing the true costs of equipment owned is difficult. Rented equipment offers its user just one accountable cost figure — that shown on the rental invoice.

6. *Inventory Control.* Another advantage in renting is better inventory control. Contractors in particular often find that they have less inventory loss due to pilferage when equipment is rented rather than owned. Although at first glance this may seem strange, there is a very logical reason for it. The presence of continuous billing on any rented item tends to establish accountability for that item. The contractor who owns a great deal of miscellaneous equipment has a difficult time establishing personal responsibility for any of it. Tools signed for at an equipment rental yard — tools which must ultimately be returned — seem somehow to be watched with sharper eyes.

7. *Disposal Costs.* It is easy to overlook the cost of disposing of owned equipment. It costs money to sell any type of used or obsolete equipment. Preparing the equipment for resale, advertising and selling time are cost factors of ownership that do not occur in renting.

### Comparative Costs

8. *Obsolescence.* Day-to-day renting eliminates



obsolescence risk for the user. Faster and better equipment is constantly appearing, as manufacturers battle for a market keenly aware of rising wage costs. Ownership involves the risk of being handicapped with equipment that is slow and unweildy compared with newer models. On the other hand, an equipment rental yard must keep available the latest types and models of equipment.

9. *Correct Equipment For The Job.* Ownership often forces another kind of inefficiency through use of the wrong size or type of equipment for a given job, even though the equipment is not obsolete. This can also mean additional, though hidden, costs. Rental insures the correct equipment for the job.

10. *Minimum Equipment For The Job.* Equipment ownership becomes particularly onerous when such equipment must lie idle, as owned equipment often does from time to time. When ownership, say, of basic equipment only is combined with rental as needed, idle time of equipment is minimized.

11. *Personal Property Taxes and Licenses.* There are no personal property taxes or license costs for the user of rented equipment. On owned equipment these are substantial costs, which must be added to the cost of owning rather than renting.

12. *Conservation of Capital.* Renting conserves capital. It frees capital for other, potentially more profitable uses than that of being tied up in equipment.

13. *Increases Borrowing Capacity.* The equipment user who rents rather than buys generally finds borrowing easier because he has a better ratio of assets to liabilities, as the equipment does not appear as a liability on his balance sheet. This means that his normal line of bank credit is not disturbed. Contractors have found this most important in securing the bonds necessary for construction work.

These are some of the points which must be considered in analyzing the cost of owning equipment. It is important that all such costs be taken into account when deciding whether to rent or to buy. Simply to compare the cost of

renting an item of equipment for a given period of time with the bare purchase price of that same item is not just unrealistic — it is downright naive. To be realistic, the 13 points covered must be added to the cost of ownership.

Since the equipment rental industry is a new phenomenon in our economy, it is probably not surprising that many businessmen still fail to understand it. Some still express pride in the fact that they never rent — in the mistaken belief that renting reveals a lack of capital, or a weak financial position.

#### **Up-Dated Attitudes**

Because attitudes die hard — because there was a time when the word “rent” was itself a bad word, and renting a mark of disgrace — a certain amount of false pride in ownership still exists. Fortunately such pride is no longer based on fact, if indeed it ever was. Some of the largest companies in the nation now rent without hesitation — when renting is more profitable than leasing or buying.

The businessman who boasts that he never rents is really revealing that he himself is living in the past. If he owns much equipment there are certain to be times when some of it is idle and costing money, while rented equipment would only be a cost when actually in use. Any business today that uses equipment in its yearly operation, and fails to rent at least some of that equipment, has not yet learned that profits are earned by the use of equipment, not by ownership. Just as buying or leasing means long-term ownership, rental means short-term ownership.

Simply stated: when tools or equipment are needed for consistent use throughout the year, buy or lease them. When the need is for an hour, a day, a week, a month, or a season — rent them. When in doubt, study *all the costs* of buying, leasing, or renting — and be guided by what is most profitable.

Additional copies of this booklet can be secured by writing:

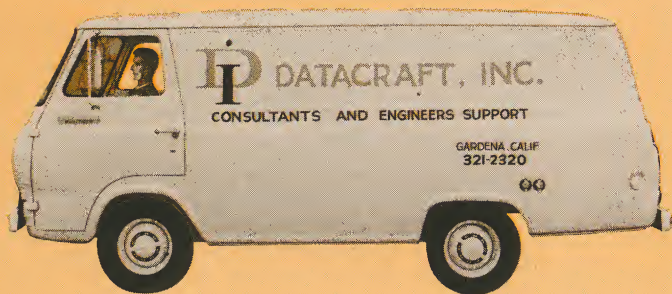
American Rental Association  
1921 Fifth Avenue  
Moline, Illinois



**DATA CRAFT, INC.**  
15225 S. Main St. Gardena, Calif. 90247

Return Requested

**would you believe...**  
**this "van-and-man"**



**for \$99 a day...**

## **Datacraft's new "99" plan offers these important advantages for short-duration testing:**

FIRST CLASS  
PERMIT NO. 129  
GARDENA  
CALIF.

### **BUSINESS REPLY MAIL**

No postage stamp necessary if posted in United States

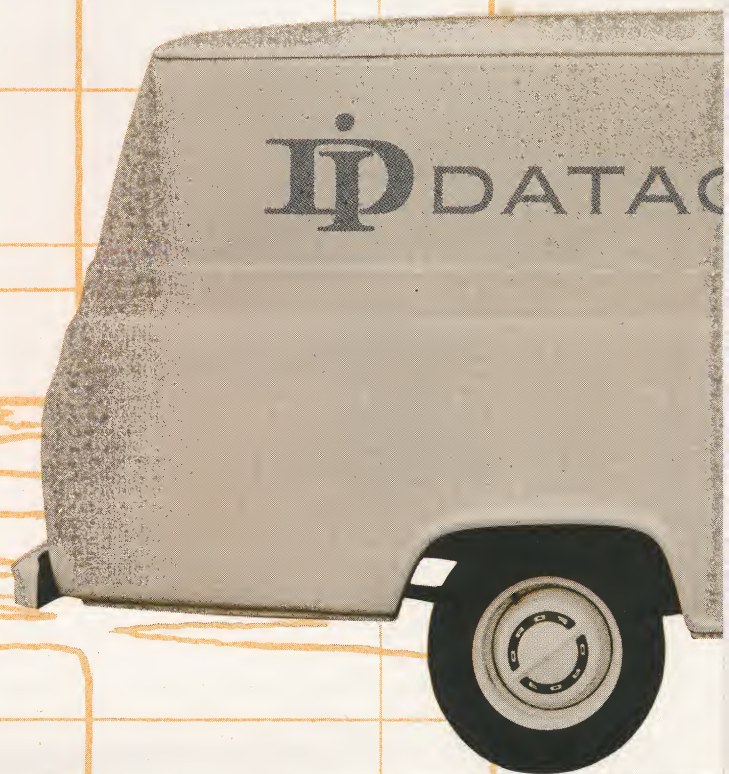
Postage will be paid by —

**DATA CRAFT, INC.**  
15225 South Main Street  
Gardena, California 90247



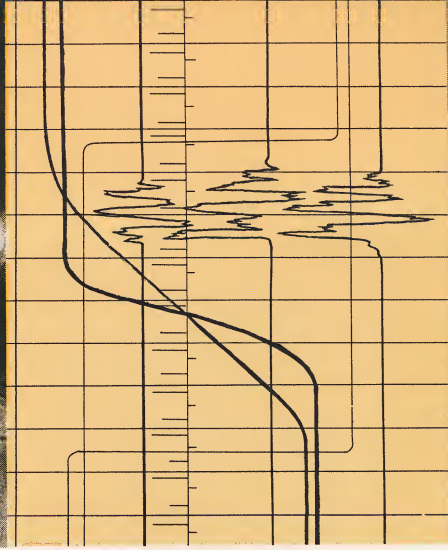
- ✓ **Flexibility**
- ✓ **Immediate availability**
- ✓ **Low cost**
- ✓ **Specialized instrumentation**
- ✓ **Fast service**
- ✓ **Expert operators**
- ✓ **Related services — if required**





**...and no delay...**





## ... it's Datacraft's new "99 Plan" — a fully-equipped instrumentation laboratory and operator for

If you are a consulting or design engineer who requires small short-duration monitoring of such standard parameters as pressure, acceleration, temperature, displacement, etc. — Datacraft's new "99" van-and-man plan is made for you. It gives you a fast-moving "ready-to-go" mobile laboratory outfitted with the latest in oscillographic and magnetic tape recording systems, operated by an expert Datacraft-trained technician — at a price within reach of the most modest budget.

### Here's How It Works

Say that you require tests, for example, on a refinery flow system. You merely call Datacraft's office in Gardena, Calif. (just outside Los Angeles) and ask for Extension 99. An instrumentation specialist will go over your requirements with you and schedule your testing — usually within the following 24 hours, if required. At the scheduled time, van and operator will be dispatched to the testing site, where instrumentation services will be performed according to your specifications. At completion of testing, operator will deliver to you final data in the form of magnetic tape or oscillograph records. All this for only \$99.

Or if you wish, the data can be processed by Datacraft's Data Reduction department at stand-

dard service charges.

### What the "99 Plan" Covers

The Datacraft "99" mobile instrumentation laboratory is equipped to monitor various standard parameters including:

pressure	acceleration	displacement	speed
strain	voltage	current	temperature
		sound level	

Arrangements may be made for special types of measurement.

### A Fully Equipped Laboratory

All Datacraft "99" vans are insulated and air-conditioned. They can operate from any 110V line or if required, can be provided with their own self-contained power source. This mobile laboratory is equipped with oscillographic, magnetic tape and visual readout data acquisition equipment. It carries a stock of pressure transducers, crystal and strain gage accelerometers, linear potentiometers, DC amplifiers, meters, etc., plus all necessary supporting equipment.

### Trained Operators

Datacraft van operators are trained technicians familiar with all phases of modern instrumentation, including test setup and equipment opera-

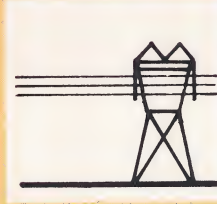
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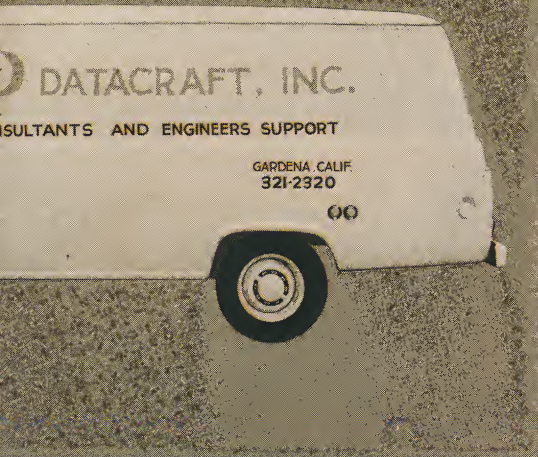
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## Equipped mobile for \$99 per day!\*

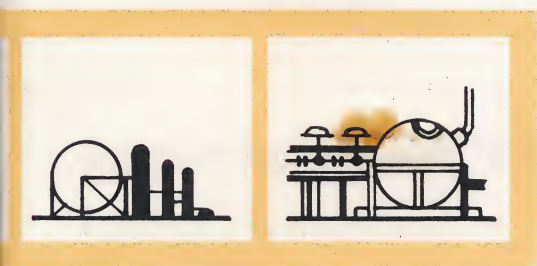
With a background of knowledge in the field of testing, they are able to provide specialized services on site such as interpretation of final data and test evaluation.

### Field Operations

Typically, the "99" van-and-man plan has been designed for use within a one-hour drive of Datacraft's Gardena headquarters, thus allowing minimum time for service on site. The fact that the facility is located only two blocks off the Harbor Freeway, which intersects with the San Diego Freeway a mile to the south, helps keep travel time at a minimum. If desired, arrangements may be made for operations in more remote areas.

### Special Datacraft Service

Datacraft "99 Plan" is an outgrowth of our company's policy — maintained since its foundation in 1958 — of offering to government and industry the exact type of modern technical equipment and trained personnel required to do any particular job. Our mobile instrumentation laboratories are only one aspect of an organization's capability for carrying a total engineering project from theoretical analysis through laboratory and field data collection to the final technical report. Some of these related services are listed briefly in the adjoining column.



\*Portal-to-portal Gardena.

## Related Datacraft Services

### Field Operations

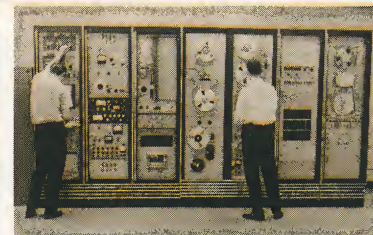
This division of Datacraft provides mobile laboratories and operating personnel for data acquisition on almost **any type of program anywhere within the continental United States**. Specially equipped vans, varying in size up to 40 ft. length, are available: both digital and analog systems can be provided. Equipment for these vans is drawn from Datacraft's massive inventory of data acquisition equipment — one of the largest in the country.

### Systems Design and Fabrication

In cases where equipment capable of accomplishing a desired result is not available, Datacraft's Systems Division is equipped to devise new measurement techniques or to design and assemble new systems from concept through delivery of hardware. Examples of some of the diverse fields in which the Division has worked are far field acoustics, complex environmental temperatures, and unique strain gauge problems from titanium to plaster.

### Data Reduction

Facilities for all types of data reduction from magnetic tape and oscillographs are offered at Datacraft's Gardena headquarters. Also available are PSD analysis, A-D conversion, tape-to-oscillograph conversion systems, and tape dubbing systems.



Call for details today, or fill in and mail postage-free card below.

**DATACRAFT, INC.**

**(213) 321-2320 (213) 323-9120 : 15225 South Main St. Gardena, Calif. 90247**

Please send additional information on items indicated:

- ☐ Field Operations
- ☐ Systems Design and Fabrication
- ☐ Data Reduction
- ☐ Instrumentation Equipment Rental
- ☐ Please have Representative contact me regarding \_\_\_\_\_
- ☐ Please remove my name from your mailing list:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Dept. \_\_\_\_\_

Address \_\_\_\_\_ Ext. \_\_\_\_\_  
Phone \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

(Please type or print above information)



## RECORDING EQUIPMENT

PRICE CHANGES effective 11 NOVEMBER 1966

<u>Stock No.</u>	<u>Manufacturer/Description</u>	<u>Rental</u>	
		<u>Weekly</u>	<u>Monthly</u>
<u>TAPE RECORDERS</u>			
New	Datacraft Model 5000, 4-Track, FM 0-2500 cps, Speeds: 3-3/4, 7-1/2 and 15.	\$ 150.00	\$ 460.00
New	Datacraft Model 5800, 4-Track, Direct Record/Reproduce, 50-25,000 cps, FM 0-2,500 cps, Speeds: 7-1/2 - 15 IPS.	\$ 150.00	\$ 460.00
New	CEC Model VR 3300, 14-Track, Direct Record/Reproduce, 100-200,000 cps, FM 0-20,000 cps, Speeds: 1-7/8 - 60 IPS.	\$ 585.00	\$ 1,460.00
New	Sanborn/Hewlett-Packard Model 3914, 14-Track, Direct Record/Reproduce, 50-100,000 cps, FM 0-10,000 cps, Speeds: 1-7/8 - 60 IPS.	\$ 585.00	\$ 1,460.00
	Ampex Model 800, 14-Track Tape Transport (CEC Electronics), Direct Record, 50-50,000 cps, FM 0-5 KC, Speeds: 3-3/4 - 30 IPS.	\$ 675.00	\$ 1,660.00
<u>OSCILLOGRAPHS</u>			
1101	Honeywell Model 906, 8-Channel.	\$ 66.00	\$ 200.00
1204	Midwestern Model 581, 14-Channel.	\$ 71.00	\$ 213.00
New	CEC Model 5-122, 26-Channel, freq. resp. 0-13 KC, Speed: .047-96"/sec., 8" paper, (power req. 200V, 400 cycle, 3 $\phi$ ).	\$ 81.00	\$ 275.00

# RECORDING EQUIPMENT (Continued)

<u>Stock No.</u>	<u>Manufacturer/Description</u>	<u>Rental</u>	
		<u>Weekly</u>	<u>Monthly</u>
OSCILLOGRAPHS (Cont'd)			
1317	Sanborn Model 320, 2-Channel	\$ 65.00	\$ 166.00
New	Brush Model 2664, 6-Channel with RD5211-13 amplifiers, freq. resp. 0-100 cps, Speed: .4 CM/hr to 100 MM/sec., gain from .01 to 10 volts/chart line.	\$ 99.00	\$ 300.00
<u>X Y RECORDERS</u>			
New	Moseley Model 135	\$ 55.00	\$ 165.00
<u>GALVANOMETERS</u>			
1801	CEC - Honeywell - Midwestern	\$ 4.00	\$ 15.00

## AMPLIFIERS

PRICE CHANGES effective 11 NOVEMBER 1966

<u>Stock No.</u>	<u>Manufacturer/Description</u>	<u>Rental</u>	
		<u>Weekly</u>	<u>Monthly</u>
New	Kistler Model 504, Charge Amplifier, freq. near DC to 100,000 cps	\$ 20.00	\$ 60.00
New	Photocon Model DG 101, freq. DC to 10,000 cps	\$ 18.00	\$ 60.00
3101	Endevco Model 2607, AC Cathode Follower	\$ 10.00	\$ 30.00
3104	Endevco Model 2608, Cathode Follower	\$ 8.00	\$ 25.00
3109	Video Model 92, Cathode Follower	\$ 6.00	\$ 15.00
3204	Glennite Model KA 1006, AC Amplifier	\$ 10.00	\$ 30.00
3205	Kintel Model 110 A, DC Amplifier	\$ 13.00	\$ 43.00
3206	Honeywell Model T6GA, 6-Channel, Driver Amplifier	\$ 25.00	\$ 75.00
New	Electro Instruments Model A-15, DC Amplifier, freq. 0-10,000 cps, gain 1-1,000	\$ 17.00	\$ 56.00
3308	Pacific Telemetry System Model MCS101, 20 KC Carrier Amplifier, freq. 0-2,000 cps.	\$ 10.00	\$ 30.00

## TRANSDUCERS

PRICE CHANGES effective 11 NOVEMBER 1966

<u>Stock No.</u>	<u>Manufacturer/Description</u>	<u>Calibration</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
5001	<u>PRESSURE</u>			
	Kistler (quartz)	\$ 10.00	\$ 15.00	\$ 44.00
	Photocon	\$ 10.00	\$ 12.00	\$ 40.00
5021	<u>ACCELEROMETERS</u>			
	Endevco (Piezite)	\$ 10.00	\$ 7.00	\$ 25.00
	Glennite (Piezite)	\$ 10.00	\$ 6.00	\$ 20.00
	<u>ACCOUSTICS</u>			
	Glennite Microphones	Special	\$ 15.00	\$ 45.00
	Chesapeake Microphones	Special	\$ 15.00	\$ 45.00
	<u>FORCE</u>			
	Kistler Load Washer	Special	\$ 10.00	\$ 30.00
	Cox & Steven Load Cell	Special	\$ 15.00	\$ 45.00
	BLH Load Cell	Special	\$ 15.00	\$ 45.00
	Transducers, Inc., Load Cell	Special	\$ 15.00	\$ 45.00
	Photocon Load Cell	Special	\$ 20.00	\$ 55.00
	<u>SPEED</u>			
	Electro Magnetic Pick-ups	N/C	\$ 5.00	\$ 15.00
	<u>TEMPERATURE</u>			
	Rosemont (Resistance)	Special	\$ 11.00	\$ 35.00
	Lewis (Resistance)	Special	\$ 11.00	\$ 35.00



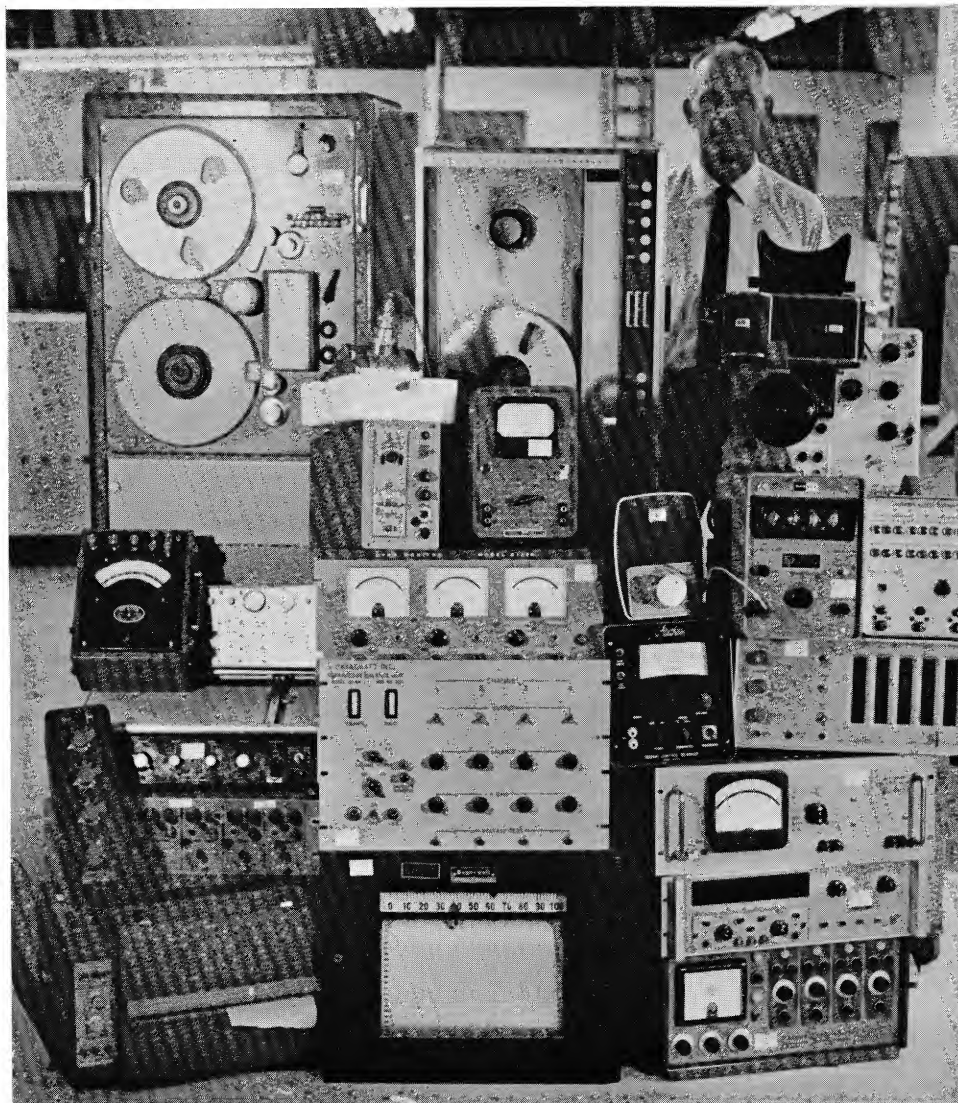
WE'RE UP TO OUR NECKS

IN

EQUIPMENT

- - AND IT'S ALL

FOR RENT



WEEKLY OR MONTHLY RATES

Take advantage of this new concept to save time & money. The rental rate is only a fraction of the purchase price.

OFF - THE - SHELF DELIVERY

DATA-CRAFT has one of the largest inventories of data recorders, signal conditioning, transducers and electronic test equipment in the United States.

USE OUR EQUIPMENT TO SUPPLEMENT YOUR OWN!

## EQUIPMENT RENTAL

### STANDARD TERMS AND CONDITIONS

#### TERMS

Long-term rentals are billed each calendar month and short-term rentals are billed at their conclusion. Purchase Orders will be accepted from companies with approved credit. A deposit will be required from companies and individuals without established credit. Our standard terms are: Net 30 days.

All prices are quoted FOB - DATACRAFT, INC., Los Angeles, California.

#### DISCOUNTS

Purchase Orders issued for a 3-month period on rental items will qualify for a 20% discount. Purchase Orders issued for a 6-month period on rental items will qualify for a 30% discount.

#### SHIPMENTS

Unless requested otherwise, shipments are made by insured air freight, United Parcel or pickup, whichever is desired by the customer.

#### PRICES

Prices are subject to change without notice.

#### REPAIRS

Many rental instruments, such as galvanometers and transducers, are delicate and damage easily if not used properly. If the renter is not thoroughly familiar with their use, he should consult a DATACRAFT engineer before connecting them to his system.

Delicate instruments are checked thoroughly before shipment and any galvanometer, transducer or other delicate instrument returned to us in non-operable condition, will be billed for full repair cost. The renter, at his option, may return instruments to the original equipment manufacturers for repairs.

#### MANUALS

All manuals accompanying rental equipment must be returned to DATACRAFT with the equipment. Customers will be billed at cost for all manuals not returned.

#### ACCESSORIES

Cabling, special adapters, etc., accompanying rental equipment must be returned to DATACRAFT with the equipment. Customers will be billed at cost for any accessories not returned with rental equipment.

## EQUIPMENT RENTAL

### ORDERING INFORMATION

#### HOW TO ORDER

Order by stock number or manufacturer's model number. Whenever possible, mention range and other descriptive information to prevent misunderstanding. Be sure to request any accessories, or calibrations, that must be made before shipment.

Orders may be placed by telephone (Area Code 213: 323-9120 or 321-2320). Confirming Purchase Orders should be sent to DATACRAFT, INC., 15225 South Main Street, Gardena, California.

#### QUOTATIONS

We will be happy to supply you with quotations by telephone or in writing.

#### RENTAL PERIOD

Our equipment is available at weekly, monthly and long-term rates. After three weeks, equipment rented on a weekly basis is changed automatically to our lower monthly rate. Rental period is from the date equipment leaves DATACRAFT until it returns to us. Rental requirements may be changed at any time by the customer. However, rate changes are not retroactive.

#### PRIOR RENTAL

All instruments are subject to prior rental.

#### LIABILITY

In event of loss or damage, the renter will be held responsible for replacement or repair. All repairs must be made by a company acceptable to us. Repairs necessitated by normal use of the equipment or by normal wear and tear will be made by us at our expense.

#### INSURANCE

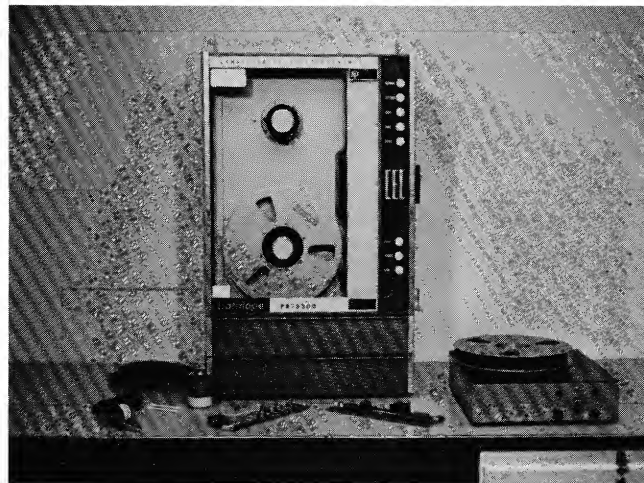
Our equipment is insured while in our custody. Customers are encouraged to insure rental equipment.

## COMPLETE SERVICE

### Off-The-Shelf Delivery

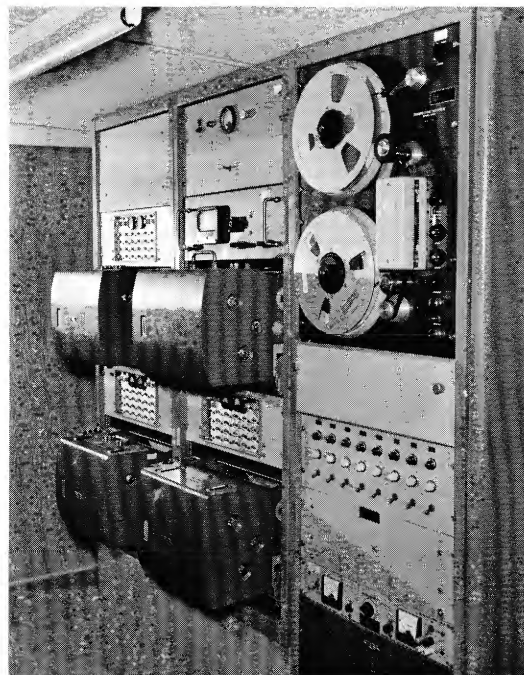
There is more to Datacraft service than pieces of hardware. All our instruments can be supplied with everything to obtain good data that our customers require.

At right is a 14-track tape recorder and some of the items used with it including record and reproduce cards, tape, tape degaussers, head degaussers, and head cleaner.



### Data Acquisition Systems

Datacraft can supply complete measuring systems by selecting all components from our inventory. This enables us to make fast deliveries as well as to keep rentals low. Rental cost often is a fraction of the purchase price, thus allowing our clients much more wide usage of all of our highly specialized equipment.

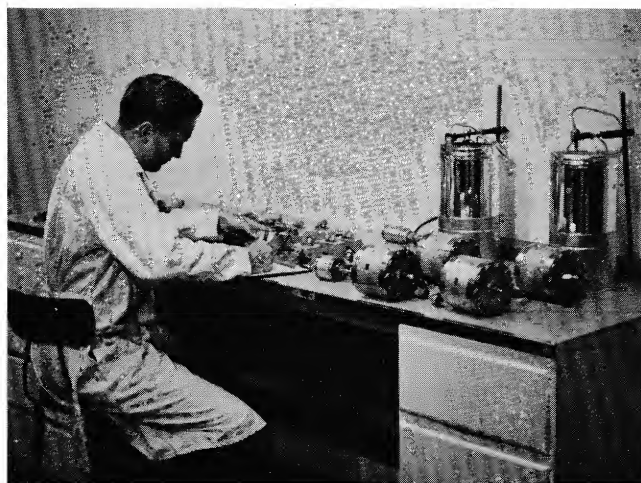


### Widest Range of Test Equipment

Datacraft has one of the largest privately-owned inventories of data recorders, signal conditioning equipment and transducers in the United States.

Picture shows a Datacraft technician doing a personal inspection on pressure transducers and accelerometers prior to calibration.

Datacraft assists in reducing testing lead-time requirements. Its more than 1,000 transducers are available off-the-shelf at all times for measurement of almost any parameter.





## MAINTENANCE



The Datacraft Maintenance Department is ready to back up our instrumentation wherever it is in use by our customers.

All equipment is checked thoroughly and repaired when that is necessary to meet its manufacturer's specifications before it leaves our Gardena plant.

If a repair is necessary on a rental item, a phone call will bring a Datacraft serviceman to make it on the spot, wherever practical. In this way, we can keep your downtime to a minimum.

## CALIBRATION



Datacraft has calibration facilities far beyond the scope of the ordinary standards laboratory. We maintain standards traceable to NBS and we have complete facilities for calibration of all types of transducers and measuring instruments: Including pressure, temperature, rate of turn, vibratory displacement, current voltage and linear acceleration. The extensive size of our facilities and our highly skilled technicians guarantee our customers accurate and reliable rental equipment.





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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
<u>TAPE RECORDERS</u>				
1001	Ampex	<u>2 Track</u> Model 351 Direct record & reproduce 30-15000 CPS Speed 7.5 and 15 IPS	\$ 98.00	\$ 287.00
1002	Ampex	<u>4 Track</u> Model 500 Direct record & reproduce 100-100,000 CPS Speed 30 and 60 IPS	244.00	760.00
1003	CEC	<u>14 Track</u> Model PR3300 Direct record & reproduce 100-100,000 CPS FM 0-10 KC Speeds from 1 7/8 - 60 IPS	585.00	1,460.00
1003-1	Minneapolis Honeywell	<u>14 Track</u> Series 3160 Direct record & reproduce 100-100,000 CPS FM 0-10 KC Speeds from 1 7/8 - 60 IPS	585.00	1,460.00
1003-2	Ampex	<u>14 Track</u> Model S-3557 Direct record & reproduce 100-100,000 CPS FM 0-10 KC Speeds from 1 7/8 - 60 IPS	585.00	1,460.00
1004	Sanborn	<u>7 Track</u> Model 2007 Direct record & reproduce 50-100,000 CPS FM 0-10 KC Speeds from 1 7/8 - 60 IPS	385.00	995.00
1004-1	Ampex	<u>7 Track</u> Model FR1100 Direct record & reproduce 50-100,000 CPS FM 0-10 KC Speeds from 1 7/8 to 60 IPS	385.00	995.00

DATA CRAFT, INC.

Section: 1000

RECORDING EQUIPMENT

Page : 2

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
1004-2	Ampex	<u>7 Track Model 309R</u> Direct record & reproduce 50-100,000 CPS FM 0-10 KC Speeds from 1 7/8 - 60 IPS	\$ 385.00	\$ 995.00

OSCILLOGRAPHS: ULTRA-VIOLET

1101	Heiland	<u>8 Channel Model 906</u> Freq. resp. 0-2 KC Speed .2 - 50"/sec. 6 inch paper	86.00	300.00
1102	CEC	<u>18 Channel Model 5-124</u> Freq. resp. 0-13 KC Speed .25 - 64 IPS 7 inch paper	121.00	360.00
1105	Midwestern	<u>14 Channel Model 621S</u> Freq. resp. 0-6 KC Speed .2"/min. - 60"/sec. 6 inch paper	121.00	360.00
1103	Midwestern	<u>36 Channel Type 602</u> Freq. resp. 0-6 KC Speed .0865 - 138.6 IPS 12 inch paper	190.00	624.00
1104	CEC	<u>36 Channel Type 5-123</u> Freq. resp. 0-13 KC Speed .1" - 160 IPS 12 inch Paper	296.00	885.00

OSCILLOGRAPHS: STANDARD PHOTOGRAPHIC

1201	CEC	<u>26 Channel Model 5-114</u> Freq. resp. 0-13 KC Speed .45 - 100 IPS 7 inch paper	81.00	275.00
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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
1202	CEC	36 Channel Model 5-119 P4 Freq. resp. 0-13 KC Speed .16 - 160 IPS 12 inch paper	\$ 192.00	\$ 624.00
1203	Midwestern	<u>36 Channel</u> Type 591 Freq. resp. 0-6 KC Speed .0812 - 129.9 IPS 12 inch paper	172.00	522.00
1204	Midwestern	<u>14 Channel</u> Type 581 Freq. resp. 0-6 KC Speed .446 - 44.75 IPS 3 5/8 inch paper	81.00	275.00

OSCILLOGRAPHS: PEN TYPE

1301	Brush	<u>2 Channel</u> Model BL 202 with BL 360 amplifier Freq. resp. 0-100 CPS Speed 5 - 125 mm/sec.	85.00	166.00
1317	Sanborn	<u>2 Channel</u> Model 320 with amplifiers Freq. resp. 0-125 CPS Speed 1 - 100 mm/sec.	95.00	225.00
1302	Sanborn	<u>4 Channel</u> Model 154-100 B with drivers Freq. resp. flat 20 CPS Speed .25 - 100 mm/sec. with preamplifiers	80.00 126.00	290.00 425.00
1303	Sanborn	<u>6 Channel</u> Model 156-100 with drivers Freq. resp. flat 20 CPS Speed .25 - 100 mm/sec.	95.00 137.00	325.00 445.00
1304	Sanborn	<u>8 Channel</u> Model 158-5490 Recording Console with drivers (no preamplifier) Freq. resp. flat 20 CPS Speed .25 - 100 mm/sec.	189.00	523.00
1312	Offner	<u>6 Channel</u> Model R Freq. resp. 0-150 CPS Speed 1 - 250 mm/sec	189.00	523.00

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
1305	Sanborn	8 Channel Model 158-100 BW (no drivers or preamplifier) Freq. resp. 0-100 CPS Speed .25 - 100 mm/sec. with drivers Freq. resp. flat 20 CPS	\$ 105.00   189.00	\$ 350.00   523.00
1310	Esterline Angus	20 Channel Event Recorder Speed 3/4"/sec. - 3/4"/hr.	36.00	99.00
1311	Esterline Angus	40 Channel Event Recorder Speed 3/4"/sec. - 3/4"/hr.	66.00	189.00

STRIP CHART RECORDERS

1401	Bristol	1 Channel Model 560 Strip Chart Recorder	24.00	75.00
1405	Minneapolis Honeywell	2 Channel Model 153 Strip Chart Recorder	47.00	150.00
1410	Minneapolis Honeywell	16 Point Model 153 Strip Chart Recorder	49.00	170.00
1412	Minneapolis Honeywell	24 Point Model 153 Strip Chart Recorder	53.00	199.00
1415	Minneapolis Honeywell	24 - 144 Point Model 153 Temperature Logger	78.00	227.00

X Y RECORDERS

1501	Moseley	X Y Recorder Model 1	26.00	89.00
1502	Moseley	X Y Recorder Model 2D & 25	32.00	110.00
1503	Moseley	X Y Recorder Model 3SR	29.00	98.00

ACCESSORIES FOR OSCILLOGRAPHS & TAPE RECORDERS

1801	CEC Heiland Midwestern	Galvanometer	7.50 ( first wk. ) 3.00 ea. wk thereafter	15.00
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DATA CRAFT, INC.

Section: 1000

RECORDING EQUIPMENT

Page : 5

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
1802	Midwestern	Carrier Model 5-036 (Galvanometers)	\$ 2.50	\$ 8.00
1803	CEC	Datarite for Model 5-119 Developer magazine Speed .1 - 25"/sec.	97.00	325.00
1804	CEC	Processor Oscillogram Model 23-109 Adjustable guides to fit recorder paper widths up to 12 inches	97.00	294.00
1805	CEC	Take-Up Reel for CEC 5-119 Model 5-046	6.00	20.00
1806	Midwestern	Oscillograph Data Reader Model 600 up to 12 inch width	12.00	40.00
1807	Ampex	60 Cycle Amplifier Model 375 Output 60 CPS 70 watts	45.00	125.00
1808	CEC	Remote Control Model 11-108	8.00	19.00

## 12 CHANNEL OSCILLOGRAPH DATA SYSTEM

STRAIN DATA-----0-600 CPS  
LINEAR & INTERGRATING DATA-----10-2000 CPS

### SPECIFICATIONS

#### Linear/Integrating Model 1-112C Plug-In

##### (1) Linear

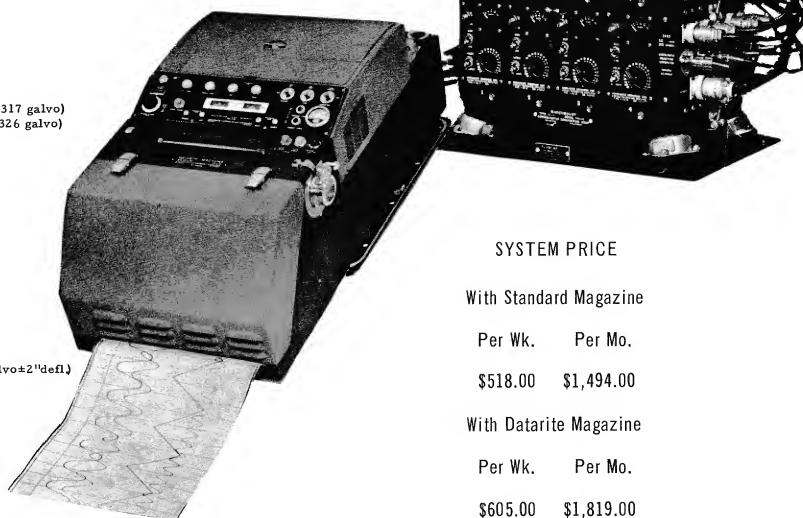
Input V: 3 mv rms  
Input Impedance: 20,000 ohms  
Output:  $\pm 42$  ma peak into a 24 ohm load (C.E.C. 7-317 galvo)  
 $\pm 30$  ma peak into a 52 ohm load (C.E.C. 7-326 galvo)  
Frequency Response: 5-5000 cps

##### (2) Integrating

Input: 190 mv at 100 cps  
Input Impedance: 20,000 ohms  
Output: 40 ma into a 24 ohm load (7-317 galvo)  
30 ma into a 52 ohm load (7-326 galvo)  
Frequency Response: 5-5000 cps

#### Carrier Amplifier Type 1-113B Plug-In

Input V: 1. volt  
Input Impedance: 1800 ohms  
Bridge Balance: 2 or 4 arm bridge  
Output:  $\pm 5$  ma into a 24 ohm load (C.E.C. 7-323 galvo $\pm 2$  defl.)  
Frequency Response: 0-600 cps  
Carrier Excitation: 10 V at 3 KC



### SYSTEM PRICE

With Standard Magazine

Per Wk.	Per Mo.
\$518.00	\$1,494.00

With Datarite Magazine

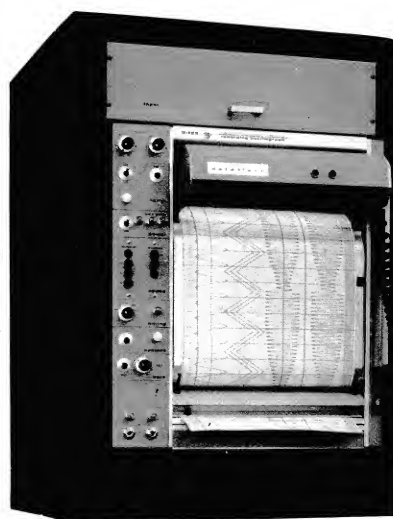
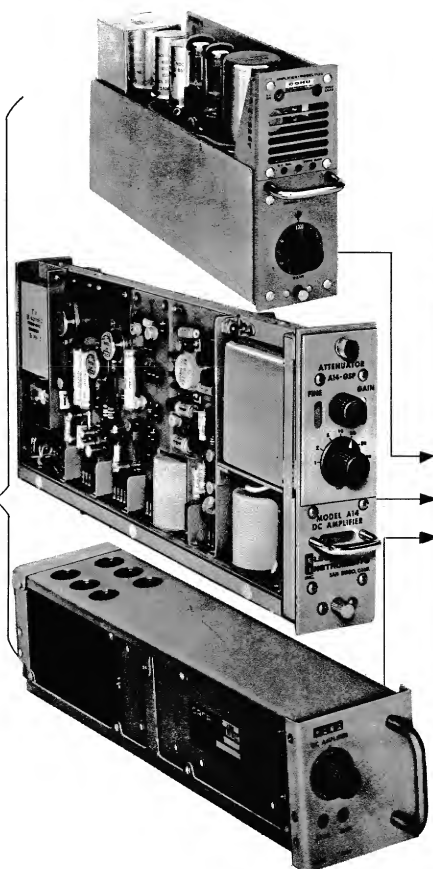
Per Wk.	Per Mo.
\$605.00	\$1,819.00

100 CHANNELS AVAILABLE UPON REQUEST

## 24 CHANNEL STRAIN GAGE SYSTEM

DC to 13 KC

SINGLE-ENDED OR DIFFERENTIAL



### SYSTEM PRICE Single Ended

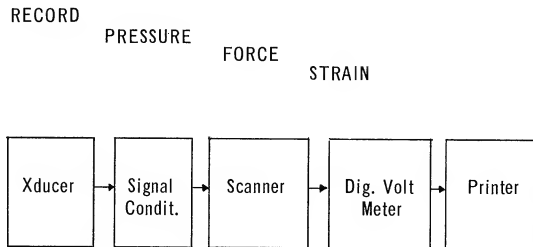
Per Wk.	Per Mo.
\$1,148.00	\$3,229.00

### DIFFERENTIAL

Per Wk.	Per Mo.
\$1,244.00	\$3,649.00

LARGER AND SMALLER SYSTEMS AVAILABLE UPON REQUEST

## 24 CHANNEL DIGITAL PRINTING SYSTEM



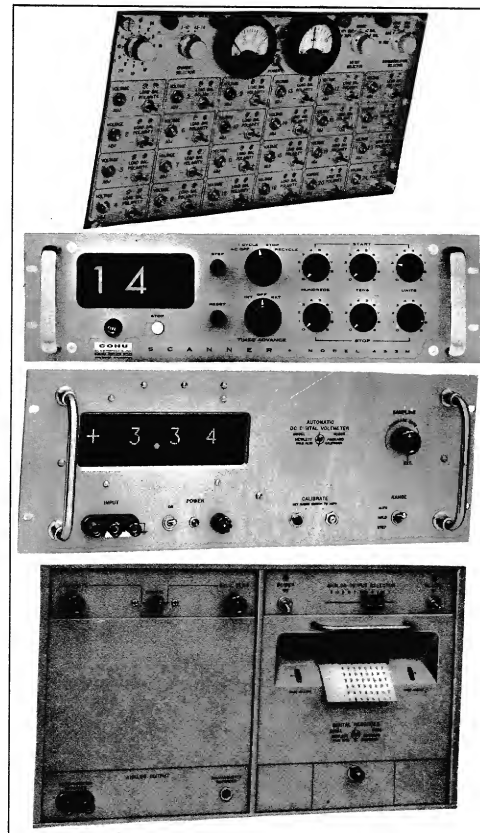
BASIC SYSTEM BLOCK DIAGRAM

### SPECIFICATIONS

Active Arms:	2 or 4
Calibration:	Manual or Automatic
Excitation:	12 V.D.C.
Range:	0.001 to 999 Volts
Range Time:	0.2 to 2 Seconds
Sample Rate:	2 Per Second

### SYSTEM PRICE

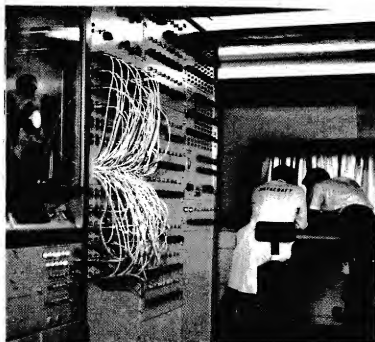
24 Channel System is Available at \$735.00  
Per Month Plus A Nominal Setup Charge.



SECTION 2000  
DATA SYSTEMS

LARGER AND FASTER SYSTEMS AVAILABLE UPON REQUEST

## 100 CHANNEL ANALOG INPUT — DIGITAL MAGNETIC TAPE OUTPUT FOR DIRECT COMPUTER INPUT



### DATACRAFT'S ANSWER TO YOUR LOW FREQUENCY ANALOG DATA RECORDING REQUIREMENTS

This Datacraft designed and built analog to digital tape recording system is the answer where minimum turn around time between test and test reports are desired. Output of this unit is in a format compatible to the 7094 Computer.

The A/D converter features all solid state construction and full scale input of 10 mv. D/A conversions and "quick-look" read-out are available for selected channel playback.

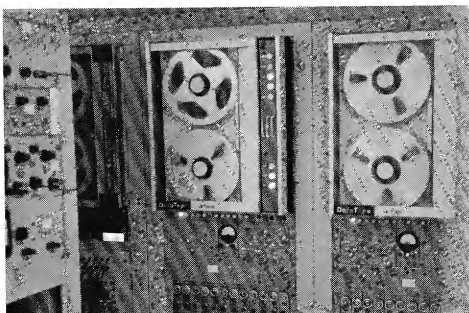
All conventional analog inputs may be accommodated for the analog signal conditioning. Automatic calibration is incorporated for positive data validity.

This unit is available on a monthly basis for only \$7,990 per month. Prices are also available, upon request, for extended rental periods.

OPERATION MANUAL AVAILABLE TO QUALIFIED ORGANIZATIONS



## 35 CHANNEL ACOUSTIC AND VIBRATION DATA RECORDING ON MAGNETIC TAPE



### DATACRAFT'S ANSWER TO YOUR ACOUSTIC, VIBRATION AND SHOCK TEST RECORDING REQUIREMENTS

Mobile Laboratory No. 14 provides a total of 35 tracks of magnetic tape recording. Signal conditioning includes provisions for processing acceleration, pressure, temperature, and acoustical data from piezoelectric transducers. Also included are provisions for up to twelve channels of temperature and humidity recording. The laboratory is complete with all necessary checkout, calibration, and troubleshooting equipment.

In addition to the data acquisition system, the Mobile Laboratory includes a darkroom, air-conditioning, storage space, and work benches.

Mobile Laboratory No. 14 is available on a rental basis for:

Per week \$1,395

Per month \$2,995

Extended periods - price on request

## 120 CHANNEL DYNAMIC TEST DATA RECORDING UNIT



### DATACRAFT'S ANSWER TO YOUR SHORT TERM DYNAMIC TEST REQUIREMENTS

Remote Locations . . . Self-contained . . . Low Lead Time . . . Economical

Mobile Laboratory No. 15 is a complete, self-contained 120 Channel Dynamic Recording Unit which features capability of recording strain gage and potentiometer type transducer outputs on optical oscillograph paper and magnetic tape. It incorporates signal conditioning, calibration and "quick-look" capability with high quality data recording.

Recording equipment installed in this air conditioned Mobile Laboratory includes . . . one 7-channel magnetic tape unit . . . six 36-channel optical oscillographs . . . one direct write, 36-channel oscillograph in addition to signal conditioning and calibration units. Work benches, storage space, and darkroom facilities are included. Gasoline APU is available for independence from power lines.

Mobile Laboratory No. 15 is available for a monthly rental of \$8,000. For a weekly rental of \$2,850. Price for extended periods on request.

DATA CRAFT, INC.

AMPLIFIERS

Section: 3000

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Stock Number	Manufacturer	Description	Rental	
			Weekly	Monthly
<u>CATHODE FOLLOWERS</u>				
3101	Endevco	AC Cathode Follower Model 2607 Gain X10 - 100 5 CPS - 40 KC	\$ 13.00	\$ 43.00
3102	Kay Lab	AC Decade Amplifier Model 102A	11.00	19.00
3104	Endevco	Cathode Follower Model 2608	13.00	43.00
3105	Columbia Research	Cathode Follower Model 4000 .1 CPS - 1 meg.	14.00	46.00
3106	Bendix	Cathode Follower Model TAB-4	13.00	43.00
3107	Rheem	AC Amplifier Model REL 12-1	17.00	56.00
3108	Rheem	AC Amplifier Model RFL 104	17.00	56.00
3109	Video	Cathode Follower Model 92 Freq. 0-10 KC Output 100 MA	12.00	43.00
<u>AC &amp; DC AMPLIFIERS</u>				
3201	Dana	Differential DC Amplifier Model 3400 Series Freq. 0-20 KC Output 100 MA	21.00	66.00
3202	Endevco	Dyna-Monitor Model 2702B <u>3 Channel</u> Piezoelectric Transducer Amp. 3 CPS to 10 KC	53.00	175.00

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
3203	Endevco	Charge Amplifier Model 2620M 20 CPS - 10 KC	\$ 13.00	\$ 43.00
3204	Glennite	AC Amplifier Model KA 1006	13.00	43.00
3205	Kay Lab	DC Amplifier Model 110A Gain 0-1000 Freq. 0-10 KC Output 25 MA	17.00	56.00
3206	Heiland	6 Channel DC Amplifier Model T6GA Freq. 0-2 KC Output 65 MA	58.00	148.00
3207	Offner	DC Amplifier Model 190 Gain fix freq. 0-100 CPS Output 10 V	14.00	40.00
3208	Sanborn	2 Channel DC Amplifier Model 2900Z	14.00	40.00
3209	Sanborn	Freq. Deviation Amplifier Model 150-2600 400 Cycle	8.00	24.00
3210	Sanborn	DC Coupling Preamplifier Model 150-1300	8.00	24.00
3211	Sanborn	Servo-Monitor Model 150-1200	8.00	24.00
3212	Sanborn	Driver Amplifier Model 150-200A	10.00	34.00
3212-1	Sanborn	Carrier Amplifier Model 150-1100	26.00	57.00



DA TACRAFT, INC.

Section: 3000

AMPLIFIERS

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
3213	Kay Lab	DC Amplifier Model 111A & 111BF Gain 0-1000 Freq. 0-10 KC Output 40 MA	\$ 17.00	\$ 56.00
3214	Kay Lab	DC Amplifier Model 114 Gain 0-1000 Freq. 0-40 CPS Output 10 MA	17.00	56.00
3215	Kay Lab	DC Amplifier Model 120 Fixed gain Freq. 0-10 KC Output 40 MA	15.00	46.00
3217	McIntosh	AC Amplifier Model 152B 10 CPS 15 KC 35 watts	17.00	56.00
3219	Electro Instruments	DC Amplifier Model A-12X1	17.00	56.00
3230	Consolidated	Servo Amplifier Part No. E5C161280	21.00	75.00
3221	Neff	DC Amplifier Model 100C Gain 100 Freq. 0-30 CPS	17.00	56.00
3222	Photron Instrument	DC Amplifier Model 5	28.00	56.00
3224	L & N	DC Microamplifier Model 98358	26.00	57.00

Stock Number	Manufacturer	Description	Rental	
			Weekly	Monthly
<u>CARRIER AMPLIFIERS</u>				
3302	CEC	3 KC Carrier Amplifier Model System D with 1-113B or 1-112C <u>4 Channel Plug-ins</u> <u>8 Channel Plug-ins</u> <u>12 Channel Plug-ins</u>	\$ 97.00 170.00 236.00	\$ 294.00 526.00 690.00
3302-1	CEC	Carrier Amplifier 1-113B Plug-ins	17.00	56.00
3302-2	CEC	Linear & Integrating Amplifier 1-112C Plug-ins	17.00	56.00
3303	Hathaway	5 KC Carrier Amplifier Model MRC-21C <u>8 Channel</u>	98.00	376.00
3304	Heiland	5 KC Carrier Amplifier Model 119 <u>6 Channel</u>	115.00	380.00
3305	CEC	20 KC Carrier Amplifier Model 1-127 <u>4 Channel</u>	97.00	294.00
3307	Hathaway	5 KC Carrier Amplifier Model MRC-15C <u>12 Channel</u>	236.00	690.00
3308	Pacific Telemetry System	20 KC Carrier Amplifier Model MCS 101	17.00	56.00
3309	Statham	Carrier Amplifier Model CA3-12 Freq. 0-20 CPS	17.00	56.00

DATA CRAFT, INC.

Section: 4000

SIGNAL CONDITIONING EQUIPMENT

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>

STRAIN GAGE BALANCE UNITS

4101	Datacraft	Model DI-B-1	\$ 9.00	\$ 23.00
4102	Datacraft	<u>2 Channel</u> Model DI-B-2	11.00	29.00
4103	Datacraft	<u>10 Channel</u> DI-B-10	28.00	63.00
4105	Midwestern	<u>24 Channel</u> Model 436	63.00	175.00
4106	Datacraft	<u>6 Channel</u> Model DI-B-6	15.00	42.00

STRAIN GAGE MULTIPLEXING UNITS

4301	Datacraft	<u>20 Channel</u> Model DI-B-20	43.00	123.00
4302	Datacraft	<u>100 Channel</u> Model 2020	216.00	637.00

VAR. REL. & STRAIN GAGE BALANCE UNITS

4401	Pace	<u>10 Channel</u> Model C-4B	21.00 plus \$3/wk. plug-in	75.00 plus \$10/mo. plug-in
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STRAIN GAGE BALANCE UNITS (Isolated Power Supplies)

4501	Video	<u>6 Channel</u> Model SRB-200 6 isolated power supplies, voltage or constant current	66.00	160.00
4502	Datacraft	<u>4 Channel</u> Model DI-B-4-1 4 isolated power supplies	39.00	107.00

<u>Stock</u> <u>Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u> <u>Weekly</u>	<u>Monthly</u>
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TEMPERATURE CONDITIONING UNITS

4601	Douglas	18 Channel Model X-522 Thermocouple Calibrator	\$ 42.00	\$ 133.00
4602	Pace	150°F Reference Copper Constantan Iron Constantan Chromel Alumel <u>12 Channel</u> <u>24 Channel</u> <u>48 Channel</u>	19.00 38.00 53.00	33.00 66.00 96.00

FREQUENCY CONVERTERS

4701	Potter	Model 3C-3 0-2666 CPS	14.00	46.00
4702	Waugh	Models FR20 and FR211 0-3000 CPS	14.00	46.00
4703	Hewlett Packard	Tachometer Indicator Model 505A 10 - 500 KC	14.00	46.00

POTENTIOMETER BALANCE UNITS

4801	Datacraft	<u>2 Channel</u> Model DI-PB-2	11.00	29.00
4802	Datacraft	<u>12 Channel</u> Model DI-PB-12	34.00	76.00
4803	BLH	<u>20 Channel</u> Model PS BA 20 Strain Switch	15.00	45.00



DATA CRAFT, INC.

TRANSDUCERS

Section: 5000

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<u>Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Calibration</u>	<u>Rental</u>	
				<u>Weekly</u>	<u>Monthly</u>
<u>PRESSURE</u>					
5001	Bourns (Pot Type)		\$ 10.00	\$ 12.00	\$ 40.00
	CEC		"	"	"
	Lunar		"	"	"
	Pace				
	Satham		"	"	"
	Wiancko		"	"	"
	Satham P80+		12.00	20.00	65.00
	Satham P280		12.00	15.00	45.00

ACCELEROMETERS

5021	CEC		10.00	11.00	35.00
	Endevco		"	"	"
	Glennite		"	"	"
	M. B. Model 124		"	"	"
	Wiancko		"	"	"
	Satham		"	"	"

FLOWMETERS

5041	Potter & Waugh (Less than 4 1/2)		40.00 & up	20.00	67.00
	(Over 4 1/2)		40.00 & up	40.00	130.00

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Service</u>	<u>Rental</u>	
				<u>Weekly</u>	<u>Monthly</u>
<u>GYROS</u>					
5061	Humphrey	Model FG01	\$ 30.00	\$ 78.00	\$ 190.00
	Humphrey	Model RG03-0201-1	"	"	"
	Minneapolis Honeywell	Model JG7005A-48	"	"	"
	Amer. Gyro	Model A-30	"	"	"
<u>POTENTIOMETERS</u>					
5081	Bourns	3" Stroke & below		5.00	13.00
	Fairchild	"		(first wk. )	"
				3.00 ea. wk.	
	Lockheed	"		thereafter	"
	Giannini	"		"	"
	Schaevitz	"		"	"
	Bourns	Above 3" Stroke		15.00	38.00
	Fairchild	"		(first wk. )	"
				8.00 ea. wk.	
	Lockheed	"		thereafter	"
	Giannini	"		"	"
	Schaevitz	"		"	"

DATA-CRAFT, INC.

POWER SUPPLIES

Section: 6000

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
6001	Altec	Model 526B 50 - 140 VDC 8 MA	\$ 13.00	\$ 38.00
6021	Armour Electronics	Model T 230-B 0-150 VDC 1 AMP	13.00	38.00
6031	CEC	Strain Gage Model 1-132 0-15 VDC 1 AMP	6.00	20.00
6041	Convair	Model 10 157 28 VDC .5 AMP	6.00	20.00
6051	Datacraft	Model DIG-12-210 12 VDC - 210 MA	6.00	20.00
6052	Datacraft	Model DIG-28-5 0-28 VDC 5 AMP	12.00	38.00
6053	Datacraft	Model DIG-12-15 12 VDC 15 AMP	12.00	38.00
6054	Datacraft	Model DIG-28-15 28 VDC 15 AMP	12.00	38.00
6061	Dressen Barnes	Model 1.5-150X 200 VDC B+ 24 VDC fil.	27.00	58.00
6062	Dressen Barnes	Model 20-8 8 VDC - 600 MA	6.00	20.00
6071	Electronics Research	Model JR 18R 18 V 2 AMP	6.00	20.00
6081	Endevco	Model 2621 100 - 180 DC B+ 6.3 VAC fil.	15.00	47.00
6082	Endevco	Model 2622 100 - 180 VDC B+ 6.3 VAC fil.	15.00	47.00

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
6091	Engineering Magnetics	Strain Gage Model EM4-5-2 BA	\$ 15.00	\$ 50.00
6092	Engineering Magnetics	Strain Gage Model EM4-10-28	15.00	50.00
6093	Engineering Magnetics	Converter DC to AC 400 Cycle	19.00	38.00
6257	Engineering Magnetics	Model EM-6-28-30N 18-30V DC 30 AMP	31.00	62.00
6094	Engineering Magnetics	Converter 115-60 Cycle - 115-400 Cycle	30.00	96.00
6100	Federal	Model 3128-BS-1 30 VDC 10 AMP	12.00	38.00
6111	General Electric	2 KCA Regulating Transformer Model 8298282G1	29.00	49.00
6121	Harrison Lab	Model 800 B2 0-36 VDC 2.5 AMP	10.00	34.00
6131	Harrison Lab	Model 808A 0-36 VDC 0-5 AMP	15.00	48.00
6132	Harrison Lab	Model 810 B 0-60 VDC 0-7.5 AMP	24.00	79.00
6133	Harrison Lab	Model 855 B 18 VDC 1.5 AMP	6.00	20.00
6134	Harrison Lab	Model 860 0-36 VDC 0.5 AMP	10.00	34.00
6151	Hewlett Packard	Model 710 A 0-500 VDC 1.5 AMP	28.00	85.00



DATA CRAFT, INC.

POWER SUPPLIES

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
6152	Hewlett Packard	Model 712 B 0 + 500 VDC . 2 AMP -300 VDC . 05 AMP 0-150 VDC . 005 AMP	\$ 13.00	\$ 38.00
6161	Kintel	DC Power Supply Model 30 C-25 10-300 VDC	13.00	38.00
6162	Kintel	Model 110 M 10 12 VDC - 200 MA	6.00	20.00
6171	Lambda	Model 62M 245 VDC - 305 VDC Regulated B+ 600 MA	13.00	38.00
6172	Lambda	Model 28 200 -325 VDC Regulated B+ 6. 3 VAC fil	27.00	58.00
6181	Leeland	Motor Generator 115V - 25 AMP	38.00	89.00
6191	Magnetic Research	Model MR 15 0-15 VDC 1. 5 AMP	6.00	20.00
6201	Pioneer	Converter DC - AC 60 Cycle	19.00	38.00
6211	Power Designs	Model 322M 0-500 VDC 200 MA	13.00	38.00
6221	Sorenson	Model E 28-30 30 VDC 30 AMP	31.00	62.00
6231	Sorenson	Regulator 1 KVA 115 VAC 60 Cycle	20.00	65.00
6241	Sorenson	Model DE6-40A	31.00	62.00

DATA CRAFT, INC.

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POWER SUPPLIES

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
6251	Trans Pacific	Model TR 50 50 VDC 50 MA	\$ 6.00	\$ 20.00
6252	Trans Pacific	Model TR 20A 20-30 VDC 150 MA	6.00	20.00
6253	Trans Pacific	Model TR 40A 40-50 VDC 450 MA	6.00	20.00
6254	Trans Pacific	Model TR 10A 10-20 VDC 200 MA	6.00	20.00
6255	Video	Model SR200 A-1 5-12 VDC 200 MA	6.00	20.00
6256	Video	Model SR100 EHM 24-30 VDC 100 MA	6.00	20.00

Stock Number	Manufacturer	Description	Rental	
			Weekly	Monthly
<u>OSCILLOSCOPES &amp; ACCESSORIES</u>				
7028	Tektronix	Oscilloscope Model 515 DC to 15 MC	\$ 27.00	\$ 68.00
7029	Tektronix	Oscilloscope Model 531 DC to 15 MC	29.00	96.00
7030	Tektronix	Oscilloscope Model 535A DC to 15 MC	42.00	136.00
7031	Tektronix	Oscilloscope Model 541A DC to 30 MC	36.00	121.00
7056	Tekronix	Oscilloscope Model 545A DC to 30 MC	47.00	151.00
7035	Hewlett Packard	Oscilloscope Model 120A DC to 450 KC	15.00	48.00
7007	Dumont	Oscilloscope Model 304A 0-100 KC	27.00	46.00
7018	Panoramic	Sonic Analyzer Model LP-1A 20 CPS to 22.5 KC	44.00	115.00
7027	Hewlett Packard	Polaroid Scope Camera Model 196A	15.00	40.00
7010	Beattie Coleman	Polaroid Scope Camera Model K-5	15.00	40.00
7033	Tektronix	Plug-ins Type A	8.00	24.00
		Plug-ins Type B	8.00	24.00
		Plug-ins Type C	8.00	24.00
		Plug-ins Type D	8.00	24.00
		Plug-ins Type L	8.00	24.00
		Plug-ins Type 53/54C	8.00	24.00
7034	Tektronix	Mobile Stand Model 500/53A	5.00	10.00

<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
7044	Panoramic	Telemetry Indicator for checking system Model TM-1	\$ 44.00	\$ 115.00

FREQUENCY COUNTERS

7042	Systron Donner	2.5 Megacycle Counter Model 1032	40.00	125.00
7001	Hewlett Packard	Electronic Counter Model 522B 10 CPS to 120 KC	28.00	92.00
7036	Computer Measurement	Frequency Period Counter Model 201 A 0 - 100 KC	18.00	64.00
7037	Berkeley	Eput Meter-Counter Model 5556 BR	18.00	64.00

AC AND DC METERS

7043	Kintel	DC Digital Voltmeter Model 801 A 4 digit	43.00	136.00
7038	Electro Instruments	Digital Voltmeter Model 4510 400 CPS to 10 KC 4 digits	78.00	210.00
7039	Electro Instruments	Voltage to Digital Converter Model 8000 5 digits	82.00	225.00
7040	Electro Instruments	AC Ratiometer Model B161 5 digits	61.00	195.00
7041	Electro Instruments	Digital Ohmmeter Model 2302 5 digits	61.00	195.00



DATA CRAFT, INC.

Section: 7000

GENERAL TEST EQUIPMENT

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
7013	Electro Instruments	AC-DC Digital Voltmeter Model 4550 30 to 10,000 CPS 4 digit	\$ 78.00	\$ 210.00
7008	Hewlett Packard	AC VTVM 10 CPS to 4 meg Model 400 D Model 400 H Model 400 L	10.00 15.00 15.00	25.00 35.00 35.00
7011	Hewlett Packard	DC VTVM Model 410 B DC to 700 meg	15.00	35.00
7009	Millivac	DC VTVM Model MV-17C	12.00	35.00
7012	EIR Corp.	AC - DC VTVM Model 101 0-2 KC	22.00	67.00
7024	Ballantine	AC VTVM Model 300 10 CPS to 15.0 KC	19.00	26.00
7015	MB	Vibration Meter Model M-6 Accel-Vel. & Displ.	28.00	84.00
7017	General Radio	Vibration Meter Model 761-A Accel-Vel. & Displ.	22.00	67.00
7019	General Radio	Vibration Analyzer Model 762 (used with 761-A) 2.5 - 750 CPS	22.00	67.00
7064	Weston	AC/DC Meter Model 622 Millivolts & Voltage	16.00	48.00
7065	Weston	Wattmeter Model 310	16.00	45.00
7066	Weston	AC/DC Ammeter Model 370	15.00	40.00
7067	Weston	AC Voltage Meter Model 433	8.00	20.00
7068	Sensitive Research	DC Meter Model A Milliamperes & voltage	10.00	24.00

Stock Number	Manufacturer	Description	Rental	
			Weekly	Monthly
<u>FREQUENCY GENERATORS</u>				
7003	Hewlett Packard	Wide Range Oscillator Model 200 CD 5 CPS to 600 KC	\$ 8.00	\$ 20.00
7005	Hewlett Packard	Low Freq. Function Generator Model 202A .008 - 1200 CPS	17.00	55.00
7063	Hewlett Packard	Audio Signal Generator Model 205AG 20 CPS to 20.KC	23.00	60.00
7020	CEC	Range Time Generator Model 23-201	90.00	235.00
<u>INDICATORS</u>				
7021	Minneapolis Honeywell	Temperature Indicator Model 156 <u>6 Channel</u>	20.00	66.00
7022	Wheelco	M. V. Potentiometer Model 310	8.00	19.00
7055	L & N	Portable Potentiometer Model 8662	11.00	36.00
7025	Minneapolis Honeywell	Temperature Indicator Model 126 W2P 0-1000° Chromel Alumel	8.00	19.00
7026	Thermo Electric	Temperature Indicator Model 70082 0-400°F Copper Constantan	20.00	66.00
7045	Leeds & Northrup	Temperature Indicator Model 1159271 30 - 1800°F Chromel Alumel 0-1000°C	8.00	19.00
7063	Beckman	Oxygen Analyzer Model D-2 Static Samples Only Range 0-25 or 0-100% Response time - 10 sec.	15.00	45.00

DATA CRAFT, INC.

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GENERAL TEST EQUIPMENT

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
7046	Industrial Inst.	Voltage Breakdown Tester Model P2-0-4000 VDC 0-3000 VAC	\$ 16.00	\$ 53.00
7047	Industrial Inst.	Megohmmeter Model L7 100 - 600 VDC	19.00	63.00
7023	Foxboro	Strain Indicator Model 9112P 0-5000 Microstrain	38.00	98.00
7059	BLH	Strain Indicator Model SR4	41.00	110.00
7060	Alinco	Millivolt Bridge Model P-102	8.00	19.00
7061	General Radio	Strobotac Type 631-BL	18.00	48.00
7062	General Radio	Decade Resistor Type 1432-Q	10.00	30.00

\* PHOTOGRAPHIC EQUIPMENT

7050	Kodak	High Speed Camera Model Magnifax 16 mm 100 - 3200 FPS Kodak Line Ektor Lens 63 mm f/2	98.00	300.00
7051	Bell & Howell	Auto Load Camera 16 mm 16-32-64 FPS	63.00	184.00
7052	Photographic Products	Beattie Varitron Camera Model DR 2A	63.00	184.00
7053	Kodak	Aircraft Camera Model K-24 Lens 7 in. 178 mm f/2.5	100.00	300.00
7054	Solegar	Telephoto Lens 3 in. f/1.5	14.00	42.00
7057	Packard Bell	TV Camera Model 920	35.00	85.00

\* See Oscilloscopes & Accessories for Scope Cameras

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<u>Stock Number</u>	<u>Manufacturer</u>	<u>Description</u>	<u>Rental</u>	
			<u>Weekly</u>	<u>Monthly</u>
7058	Packard Bell	17" TV Monitor Model VM 64	\$ 15.00	\$ 35.00
7048	Traid	High Speed Camera Model 200V 16 mm 200 FPS Wollensak 3.7 mm f/1.5 142° wide angle lens #F-524	110.00	340.00
7049	Urban Engineering	High Speed Camera Model MBH-200-16 16 mm 50-100-200 FPS	63.00	184.00





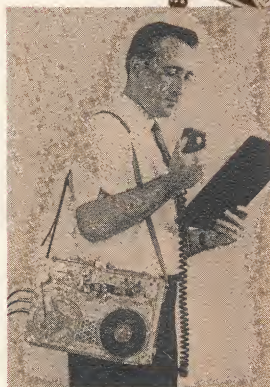
**DATA CRAFT, INC.**

15225 SOUTH MAIN ST. • GARDENA, CALIF. 90247 • 321-2320 323-9120

Yok! Nsgs.

# DATA CRAFT, INC.

TECHNICAL BULLETIN 503



## DI 5000 INSTRUMENTATION TAPE RECORDER

A truly portable data system designed for simplicity and economical acquisition of data in a laboratory or field environment.

- Self-contained
- Light weight
- Economical
- Versatile
- Simple to operate
- Rugged construction
- Adaptable

Combining the precision and accuracy required for laboratory use with the light weight and rugged construction needed for field applications, the DI 5000 Instrumentation Tape Recorder offers a reliable and economical means for acquiring all types of data including vibration, acoustic, and bio-science. The DI 5000 is a truly portable custom data system, employing standard FM electronics which eliminate the need for external amplifiers and power supply usually associated with this type of instrumentation. The DI 5000 uses  $\frac{1}{4}$ " tape with three speeds front panel switchable to tailor recording time and frequency response needs. In-



ternal rechargeable batteries supply power to both recorder and signal conditioning electronics for up to 40 hours of continuous monitoring.

### Operation

Instrumentation quality recordings are insured by a servo loop controlled DC capstan motor. No belts or pulley changes are required to select one of the three standard tape speeds. Track spacing, recording characteristics, and tape speeds are all compatible with IRIG standards.

In addition to the functional tape transport controls, a test position has been provided for calibration of the record electronics without operating the tape transport. Remote operation can be accomplished by a single on/off switch.

Specially designed plug in FM electronics incorporate sensitivity and high input impedance for recording information directly from crystal transducers. All adjustments are accessible from front panel. Standard Microdot and Amphenol connectors are used for data input.

The built-in reproduce electronics employ FET preamps located within inches of the reproduce head for excellent signal-to-noise ratio. The output of the preamps are front panel switchable to one reproduce amplifier available for external monitoring. The preamp outputs are also available for external dubbing on standard laboratory one-half and one inch recorders.

### Application

The DI 5000 is ideally suited for tests involving a few channels of data which might normally be accomplished on a larger, more expensive system. The small size and light weight construction make the DI 5000 especially useful for mobile applications in the areas of bio-science, noise surveys, and transportation environments.

### Options

Optional features of the DI 5000 include battery-powered calibrator, for field electronics adjustment; up to 16 channels of constant bandwidth multiplex; a Model 5050 auxiliary power supply and battery charger; three speed switchable electronics, leather carrying case and an environmental case.

### Warranty and Service

Each Model DI 5000 Instrumentation Tape Recorder and its associated components and accessories are guaranteed against defects in materials and workmanship for a one-year period. Service can usually be accomplished by technicians in your own facility, or the small package may be forwarded by air freight to Datacraft where prompt repairs and return are assured.

Prices start at \$4,200.00 per unit.

Write or call our Systems Engineering Department for information or quotations on custom units or complete systems.

## SPECIFICATIONS

### FM Record/Reproduce System

Tape Speed	Center Frequency	Frequency Response	S/N Ratio	Linearity: better than 1% of full scale
15	27 KHz	0 - 5 KHz	40 db	Drift: better than .4%
7 1/2	13.5 KHz	0 - 2.5 KHz	40 db	Output Impedance: 1000 ohms maximum
3 3/4	6.75 KHz	0 - 1.25 KHz	37 db	Output Level: 1 VRMs for full 40% deviation
				Harmonic Distortion: 1.5%

Record Amplifier	Input Impedance	Input Level for $\pm 40\%$ Deviation	Frequency Response
5021	1 megohm	.5V to 2V	DC to 5 KHz
5022	10 megohm	$\pm .25V$	DC to 5 KHz
5023	100 megohm	$\pm .25V$	DC to 5 KHz
5030	1000 megohm	$\pm .2V$	.5 Hz to 5 KHz
5040	1 megohm	$\pm .010V$	DC to 5 KHz

### Transport

Speed Accuracy: .25% servo loop controlled

Start Time: 5 seconds or less at all tape speeds from stop

Stop Time: 5 seconds

Size: 4.75" high, 12.5" wide, 8.8" deep

Weight: 20 lbs. operational with batteries

Tape Speeds: 3 3/4, 7 1/2, 15 panel switchable without belt, pulley, gear or capstan change.

Tape: 1/4" wide on 5" reels using cover and carrying case or 7" reels without cover.

Heads: 4 track inline record and reproduce of all metal construction

Track Width: .043" Gap Width — record head: .0001"

Track Spacing: .068" reproduce head: .00005"

Datacraft reserves the right to change specifications without notice and without obligation.

## DATA CRAFT, INC.

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